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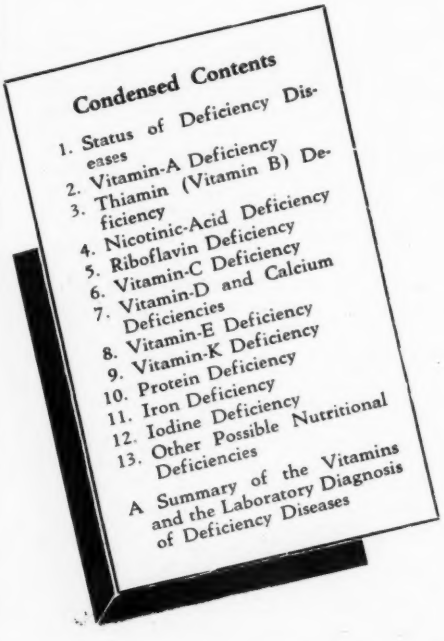
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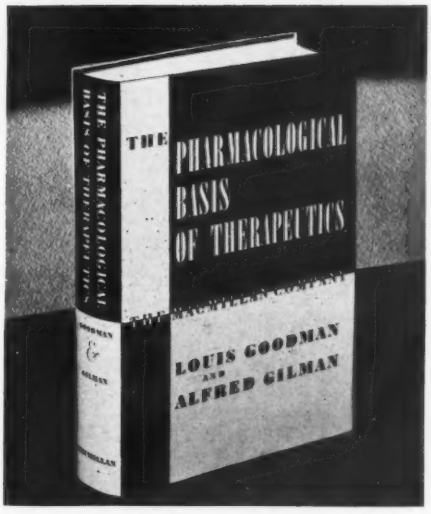

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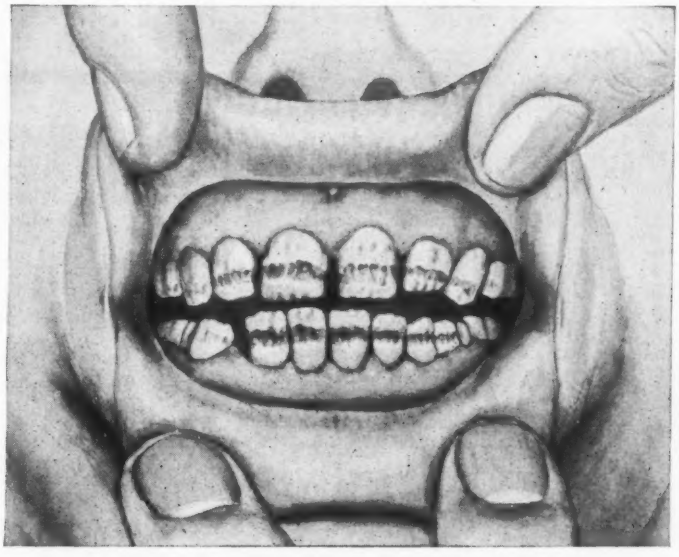

ABOVE: Permanent teeth of child, who, when approximately 2 years old, had moderately severe rickets. Note the characteristics of the enamel hypoplasia, namely thinning, cupping, pitting and/or grooving; the hypoplasia involves only those parts of the enamel being laid down at the time rickets was active. Enamel hypoplasia of permanent teeth is caused by postnatal disturbances of calcium metabolism, chiefly rickets and tetany. Only those portions of the teeth can become hypoplastic which are calcifying at the time of the disturbance. The important period for the structure and composition of the enamel of the permanent teeth is *from birth to the age of five or six years.*

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THE NATURAL VITAMIN B COMPLEX

Current medical opinion states that most B deficiencies are multiple and therefore it is essential to treat such deficiencies with the complete B complex rather than with just the known synthesized B vitamins.

ELIXIR B-PLEX is a palatable elixir of yeast concentrate. It is a natural source of the water-soluble active constituents of a potent brewer's yeast containing the unidentified fractions as well as the known factors of B complex.

[1]Borsook, H., "Vitamins", Viking Press, 1940.

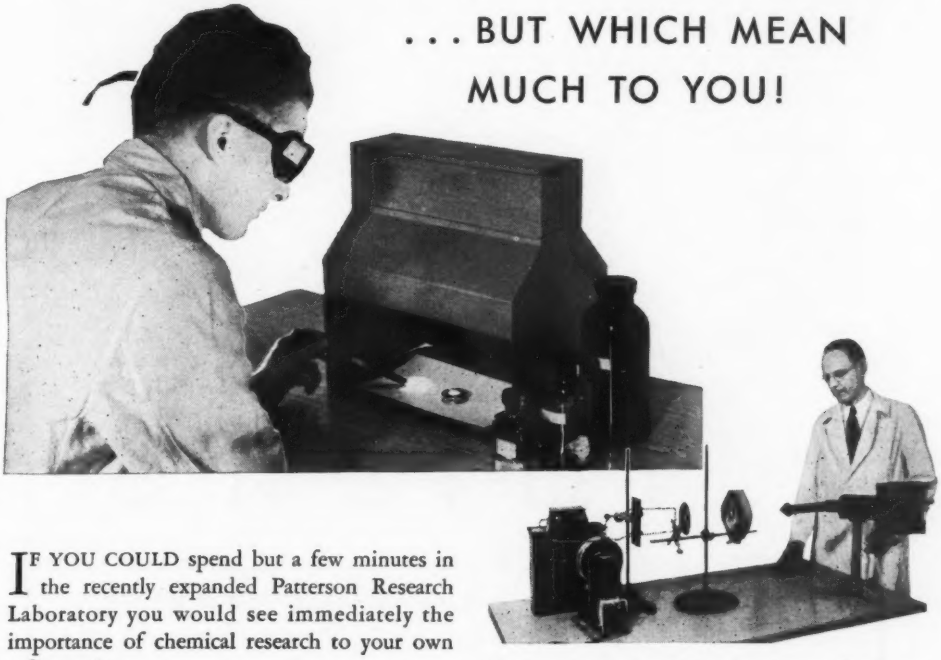
Write "ELIXIR B-PLEX, Wyeth" for your B avitaminosis cases.

Supplied in eight-ounce bottles.

JOHN WYETH & BROTHER, INC., PHILADELPHIA, PA.

Some things you can't see in your PATTERSON X-RAY SCREENS

. . . BUT WHICH MEAN MUCH TO YOU!



IF YOU COULD spend but a few minutes in the recently expanded Patterson Research Laboratory you would see immediately the importance of chemical research to your own radiography.

Logically, the performance of an X-Ray Screen can be only as consistent as the chemicals with which it is made. They must be absolutely pure —they must be uniform—and they must be combined to give you the screen properties most suitable for the work at hand.

A fair proportion of the work of the Patterson Laboratories is testing and maintaining X-Ray screen quality. But most of their work is devoted to finding the answers to such questions as:—How can base chemicals be further purified—How can their fluorescent properties be stepped up—What new factors can be introduced to improve screen performance?

Above, for example, specimens from an experimental batch of base chemical are given a preliminary rating of fluorescent qualities that points the way for future investigation. Below, the resources of spectroscopy are used to identify certain elements which may be present only in traces, but which still have a powerful effect on the luminescence.

These are merely two of the many activities that we have undertaken continuously for almost thirty years—to assure you the utmost in Patterson Screen Quality—and thus, more accurate X-Ray diagnosis.

THE PATTERSON SCREEN COMPANY
TOWANDA, PA., U. S. A.

Patterson · WORLD'S STANDARD FOR HIGHEST SCREEN QUALITY

S·I·M·I·L·A·C

● ***The name is never abbreviated; and the product is not like any other infant food — notwithstanding a confusing similarity of names.***

The fat of Similac has a physical and chemical composition that permits a fat retention comparable to that of breast milk fat (Holt, Tidwell & Kirk, Acta Pediatrica, Vol. XVI, 1933) . . . In Similac the proteins are rendered soluble to a point approximating the soluble proteins in human milk . . . Similac, like breast milk, has a consistently ZERO curd tension . . . The salt balance of Similac is strikingly like that of human milk (C. W. Martin, M. D., New York State Journal of Medicine, Sept. 1, 1932). *No other substitute resembles breast milk in all of these respects.*

ACCEPTED AMERICAN MEDICAL ASSN.

A powdered, modified milk product especially prepared for infant feeding, made from tuberculin tested cow's milk (casein modified) from which part of the butter fat is removed and to which has been added lactose, vegetable oils and cod liver oil concentrate.

★ SIMILAC } SIMILAR TO BREAST MILK ★

M&R DIETETIC LABORATORIES, INC. • COLUMBUS, OHIO

STILBESTROL was described and named in 1938 by Dodds, Golberg, Lawson and Robinson[1] who reported that it was "by far the most potent" of the many synthetic estrogens investigated. Since that time the product has undergone extensive clinical trial and more than one hundred papers have been published reporting its uses and advantages. Stilbestrol Squibb was used in a large number of these studies.

Stilbestrol Squibb (alpha, alpha'-diethyl-4, 4'-stilbenediol) is a synthetic estrogen for replacement therapy in deficiency of the estrogenic hormone. In contrast to the natural estrogens it is only slightly less effective orally than intramuscularly. Stilbestrol is also much more economical to use and therefore its field of usefulness is greatly enlarged.

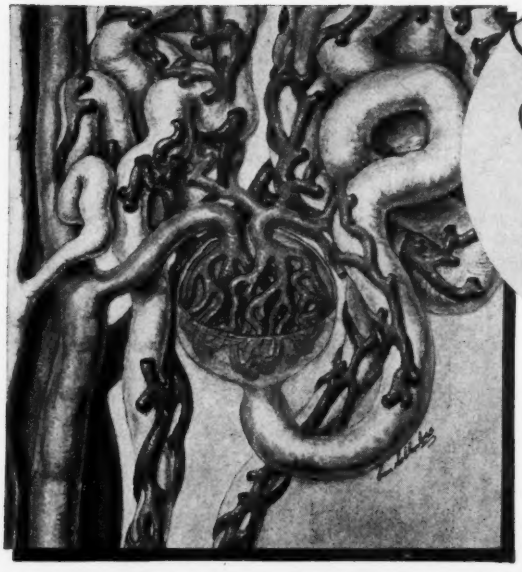
The use of Stilbestrol has been established in alleviating vasomotor symptoms of the menopause (both natural and surgical); gonorrheal vaginitis in children; senile vaginitis and kraurosis vulvae and pruritis vulvae of the menopause. It may be administered orally, hypodermically, or intravaginally. Dosage and route of administration vary with the condition being treated and with the individual patient. In common with other highly potent chemotherapeutic agents, Stilbestrol should be used with caution and only under the immediate supervision of the physican.

[1] Dodds, E. C.; Golberg, L.; Lawson, W.; and Robinson, R.: *Nature* 141:247, 1938.

How Supplied: Stilbestrol Squibb is supplied in three forms:
COMPRESSED TABLETS, either uncoated or enteric-coated (*for oral administration*) containing 0.1 mg., 0.5 mg., 1.0 mg., 5.0 mg. in bottles of 25, 100 and 250.
AMPULS (*for intramuscular injection*) in 1-cc. ampuls containing 0.2 mg., 0.5 mg., 1.0 mg. and 5.0 mg. per 1 cc. respectively, in boxes of 6, 25 and 50.
PESSARIES (*for vaginal medication*) in two sizes. 0.1 mg. for children and 0.5 mg. for adults, both in boxes of 12 and 50.

For literature write Professional Service Dept., 745 Fifth Ave., New York

E·R·SQUIBB & SONS, NEW YORK
MANUFACTURING CHEMISTS TO THE MEDICAL PROFESSION SINCE 1858.



Physiologic Basis of
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When the glomerular and tubular functions of the kidneys become impaired, alterations in the mechanism of urinary secretion occur. Often there results a retention of water with generalized edema. In such cases it is believed that Salyrgan-Theophylline lowers tubular reabsorption and thus permits the excretion of water and salt.

Salyrgan-Theophylline is extensively employed in the treatment of cardiac and cardiorenal edema as well as dropsy of nephrosis. It can usually be administered periodically without loss of potency.

Salyrgan-Theophylline is injected intravenously or intramuscularly.

WINTHROP CHEMICAL COMPANY, INC.

Pharmaceuticals of merit for the physician

NEW YORK, N. Y.
WINDSOR, ONT.

WINTHROP

HOW SUPPLIED: Salyrgan-Theophylline solution (containing 10% Salyrgan and 5% theophylline) is supplied in ampules of 1 cc., boxes of 5, 25 and 100; and in ampules of 2 cc., boxes of 10, 25 and 100.

SALYRGAN - THEOPHYLLINE

"Salyrgan," Trademark Reg. U. S. Pat. Off. & Canada

(Mercury salicylallylamide-o-acetate of sodium with theophylline)

Brand of **MERSALYL**
with
Theophylline

828M

PRODUCTS OF BAXTER LABORATORIES

VACOLITER SIMPLICITY

. . . provides greater safety in intravenous administration

★ NO COMPLICATED ATTACHMENTS

★ REMOVE THE SEALS AND INSERT THE VACODRIP

Administration of parenteral solutions from the Baxter Vacoliter is simple. The tamperproof metal seal and protective rubber diaphragm are removed and the Vacodrip inserted; that is all there is to it. *No special precautions against contamination are necessary.* Two depressions in the rubber diaphragm indicate that the vacuum is intact, and the solution fresh, pure and uncontaminated.

Purity, sterility and non-pyrogenic qualities are proved by 21 rigid chemical, biological (with laboratory animals) and bacteriological tests and inspections.

Baxter solutions are available in a complete range of types, percentages and sizes to meet every recognized professional requirement. Sodium Chloride, Dextrose, Ringers, Lactate-Ringers, Acacia, 1/6 Molar Sodium Lactate, Sulfanilamide, and Sodium Citrate.

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BAXTER LABORATORIES
GLENVIEW, ILLINOIS; COLLEGE POINT, NEW YORK; ACTON, ONTARIO; LONDON, ENGLAND
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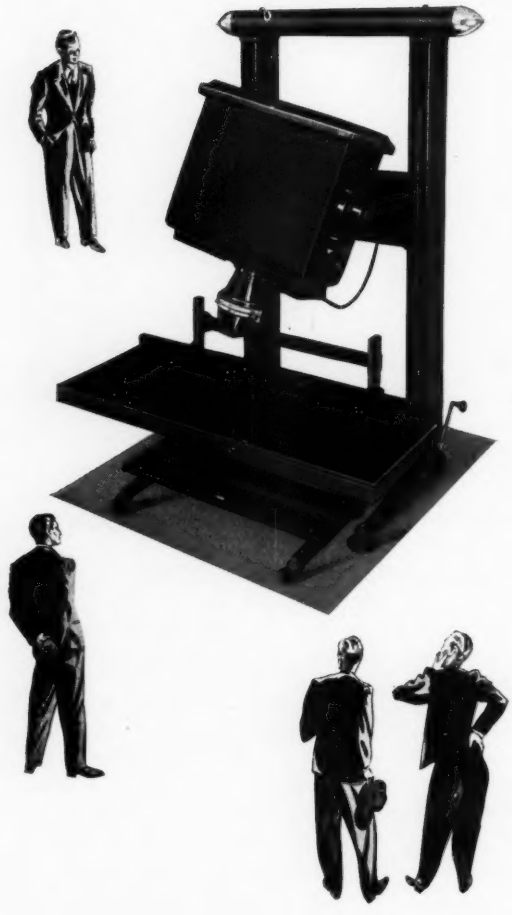
DISTRIBUTED EAST OF ROCKIES BY
AMERICAN HOSPITAL SUPPLY CORPORATION
CHICAGO NEW YORK

THEY CALLED IT *Revolutionary*



— when, five years ago, G. E. introduced this radically different design in roentgen therapy apparatus — the G-E completely oil-immersed, shock-proof Maximar.

True, it was a revolutionary step in x-ray engineering — necessarily so, in order to obtain the important technical advantages here realized, which would also make it economically feasible for more institutions to equip for a thoroughly efficient x-ray therapy service, and thus make treatments conveniently available to more people in more communities.

The fact that in five short years the Maximar has come into world-wide use is tangible evidence of its eminently successful design. And the records of performance and maintenance costs on these hundreds of installations tell a story of immediate interest to every prospective buyer of therapy equipment.

Since there are now four Maximars available — the 200 Kv., 220 Kv., 250 Kv., and 400 Kv. models — you can readily select between them according to the specific type and range of therapy service you have in mind. Moreover, our experienced engineers stand ready to draw up a floor plan to show you how a Maximar can be most practically adapted to the space you have available.

Write today for information helpful to your preliminary planning.

GENERAL ELECTRIC X-RAY CORPORATION

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BETSY ROSS HOUSE on Arch Street in Philadelphia. It was in this house the first flag of the United States was conceived and sewn in 1777. The building is still standing.

Bēpron

REG. U. S. PAT. OFF.

WYETH'S BEEF LIVER WITH IRON

BĒPRON is indicated in the treatment of the nutritional anemias. BĒPRON is a palatable, complete preparation which contains all the desirable soluble constituents of fresh whole beef liver as well as added soluble ferrous iron.

Supplied in 8-oz. and pint bottles.

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INCORPORATED

PHILADELPHIA, PENNSYLVANIA

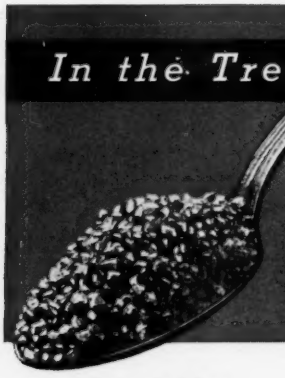
In the Treatment of Constipation

BASSORAN

(Sterculia gum and magnesium trisilicate)

PROVIDES MORE THAN

BULK



1 TEASPOONFUL
BASSORAN

BULK—Takes up water to make 12 oz. soft, free-flowing bulk.

ADSORBENT—Equals 3½ oz. colloidal kaolin in adsorbent power.

ANTACID—Provides antacid power to relieve gastric hyperacidity.

Use of bland, soft bulk for natural stimulation of peristalsis has found wide favor as an anti-constipation measure.

Bassoran supplies this bulk in abundance, for it is prepared from purified sterculia gum containing 80% bassorin—shown by comparative tests to be the most efficient bulk-producing agent.

Moreover, Bassoran has two *plus* actions not combined in ordinary bulk laxatives. Its unique formula contains magnesium trisilicate—*adsorbs* toxic substances from the sluggish bowel and *neutralizes excess gastric acidity* that frequently accompanies chronic constipation.

Two types are available—Bassoran Plain and Bassoran with Cascara. Both are supplied in 7-oz. and 25-oz. bottles.

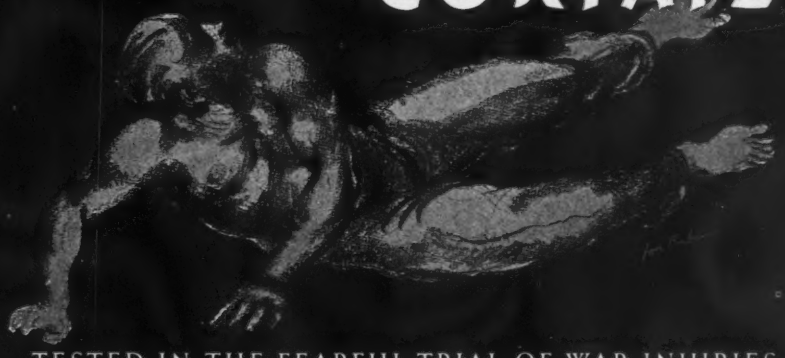
T. M. "Bassoran" Reg. U. S. Pat. Off.

Write for literature and samples

THE WM. S. MERRELL COMPANY Cincinnati, U. S. A.

SCHERING'S HORMONE OF THE ADRENAL CORTEX

CORTATE

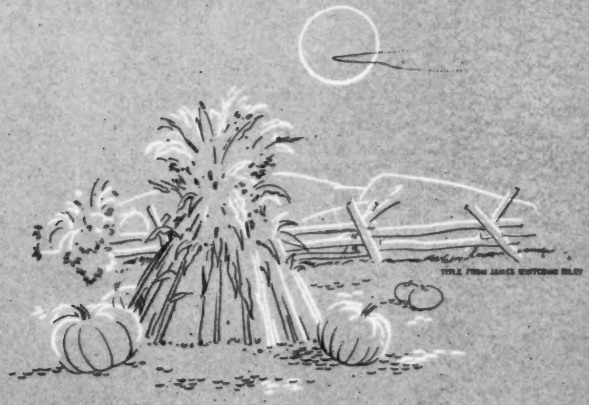


TESTED IN THE FEARFUL TRIAL OF WAR INJURIES

Desoxycorticosterone acetate has been shown to be a life-saving measure against shock, due to trauma and burns. Tested in the critical calm of peacetime clinical experience... CORTATE has been shown to be of great value in preventing burn shock, in speeding recovery from surgical operations, great and small, and in minimizing complications... CORTATE is Schering's desoxycorticosterone acetate, hormone of the adrenal cortex having highest power to control blood electrolyte disturbances ensuing upon trauma. By means of the CORTATE ROUTINE, debilitated surgical patients were brought through difficult major operations in strikingly good condition, often giving "the impression that they had not experienced a major operation". By means of urgent dosage with desoxycorticosterone acetate, many victims of the Flanders disaster survived notwithstanding burns over more than half the body surface, complicated by exhaustion, starvation and immersion in the sea. CORTATE* is indicated in these and in other clinical applications where powerful control of the effects of anesthesia, tissue destruction, dehydration and intoxication may be life-saving. Additional data available upon request. *Trade-Mark Reg. U.S. Pat. Off.

SCHERING CORPORATION • BLOOMFIELD • NEW JERSEY

"When the frost is on the punkin . . ."



The pollens are gone with the frost and your allergic patients breathe freely again. But with the fall come colds and upper respiratory infections, and to obtain relief from the nasal congestion from these causes you will again have need of a reliable decongestant.

Local application of Solution Racĕphedrine Hydrochloride (Upjohn) to nasal mucous membranes diminishes hyperemia and reduces swelling. In many cases Capsules Racĕphedrine Hydrochloride (Upjohn) are also useful in ameliorating these symptoms.

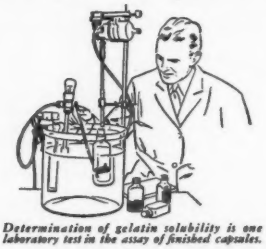
RACĔPHEDRINE HYDROCHLORIDE
(UPJOHN)

is available as:

Solution Racĕphedrine Hydrochloride (Upjohn) 1% in Modified Ringer's Solution, in one ounce dropper bottles for prescription purposes, and in pint bottles for office use

Capsules Racĕphedrine Hydrochloride (Upjohn), ⅜ grain, in bottles of 40 and 250

Powder Racĕphedrine Hydrochloride (Upjohn), in ¼ ounce bottles



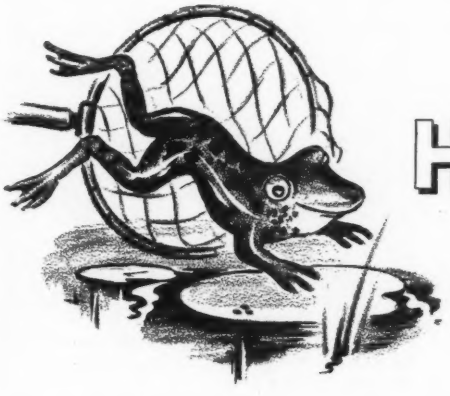
Determination of gelatin solubility is one laboratory test in the assay of finished capsules.

Upjohn
KALAMAZOO, MICHIGAN

Fine Pharmaceuticals Since 1886

Contradictory Proverbs

Look before you leap



He who hesitates is lost

HERE'S how it works out with X-Ray Film—we do the looking for you; so there's little point in your hesitating.

The looking is done in our laboratories. For example we developed a film decidedly faster than other X-Ray films when used without screens—Agfa Non-Screen X-Ray Film.

Permitting shorter exposure time and providing wider exposure latitude, it produces greater brilliance and finer detail, particularly in anatomical parts of different thicknesses.

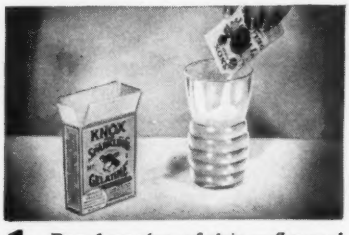
So don't hesitate: get this outstanding film now. **Agfa Ansco, Binghamton, New York.**

Agfa Non-Screen X-Ray Film

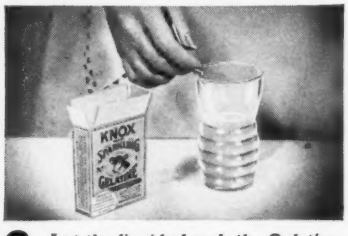
MADE IN U. S. A.

HOW TO DRINK KNOX GELATINE FOR SUPPLEMENTARY PROTEIN

In cases where you want to supplement your patients' protein, Knox Gelatine (U.S.P.) may be of help. It can be taken very easily in concentrated drink form. 2 to 4 envelopes a day (or more, depending on the patient's needs) may be prescribed. Here is the way to drink Knox:



1. *Pour 1 envelope of plain, unflavored Knox Gelatine into a glass ¾ filled with water or fruit juice, not iced.*



2. *Let the liquid absorb the Gelatine. Then stir briskly.*

Be sure the patient does not confuse Knox Gelatine with ready-flavored gelatine dessert powders. They are about 85% sugar, 3% flavor, acid, and coloring, and only 10% to 12% gelatine. Knox Gelatine (U.S.P.) is all protein. Among its 15 amino acids are 7 of the 10 considered "essential." It is manufactured under rigid bacteriological control to maintain purity and quality. It contains no sugar!

One package (1 oz.) of Knox Gelatine contains as much protein as 4.2 eggs, or 1.7 pts. milk, or 9.1 oz. wheat cereal.

Your hospital will procure Knox for your patients if you specify it by name.

3. *Drink immediately. If the gelatine thickens, stir again. Knox is tasteless, odorless.*

The above method is also followed in Peptic Ulcer conditions.

KNOX GELATINE
(U. S. P.)
A SUPPLEMENTARY PROTEIN CONCENTRATE

Send This Coupon for Useful Dietary Booklets

☐ *The Diabetic Diet* ☐ *Peptic Ulcer* ☐ *Infant Feeding*
☐ *The Protein Value of Plain, Unflavored Gelatine* ☐ *Reducing Diets and Recipes*

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Please send me FREE booklets for the medical profession as checked.

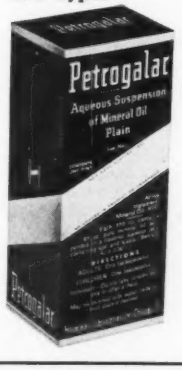
Name .....

Address .....

For the Stay-at-Home

★ ★ **Petrogalar***

★ *Available at all Pharmacies in 5 Types*



Shut in—No exercise—Appetite off—Sluggish bowel, all suggest the use of Petrogalar to assist Bowel Habit Time.

Petrogalar Plain adds unabsorbable fluid to the bowel content to encourage regular, comfortable elimination by purely mechanical means, free of habit-forming tendencies.

Children and adults alike enjoy the delightful flavor of Petrogalar. It is easy to take, either from a spoon or in water, as desired.

**Trade Mark. Petrogalar is an aqueous suspension of pure mineral oil each 100 cc. of which contains pure mineral oil suspended in an aqueous jelly containing agar and acacia.*

Petrogalar Laboratories, Inc. • 8134 McCormick Boulevard • Chicago, Illinois

(Number five in a series of six.)

Common problems in the management of peptic ulcer

"What will best control 'Night Pain' in the peptic ulcer patient?"

Four drams of Amphojel* given at bedtime exert a prolonged antacid effect usually lasting until morning. The patient sleeps more comfortably.

Four striking features of Amphojel, Wyeth's Alumina Gel, are recognized by clinicians:

Amphojel provides prompt relief from pain. It permits rapid healing of the ulcer. It cannot be absorbed and eliminates the hazard of alkalosis. It reduces excess acidity without completely neutralizing the gastric contents.

" " "

Amphojel, Wyeth's Alumina Gel

Fluid Antacid . . . Adsorbent

One or two teaspoonfuls either undiluted or with a little water, to be taken five or six times daily, between meals and on retiring.

Supplied in 12-ounce bottles

AMPHOJEL

Wyeth's Alumina Gel

For the Convenience of Ambulatory Patients

Wyeth's Hydrated Alumina Tablets

Antacid

One-half or one tablet in half a glass of water. Repeat five or six times daily, between meals and on retiring.

Supplied in boxes of 60 tablets

*REG. U. S. PAT. OFF.

JOHN WYETH AND BROTHER, INC., PHILADELPHIA, PA.

To provide and maintain these desirable features
BARD-PARKER
RIB-BACK BLADES
are built up to a quality . . . not down to a price
SUPERIOR SHARPNESS
ADEQUATE RIGIDITY
LESS REJECTS
UNIFORMITY
GREATER STRENGTH
LONGER CUTTING EFFICIENCY
ECONOMY
Each individual blade is carefully inspected after every major step of production. Blades failing to meet our rigid specifications are immediately discarded. They are not permitted to reach the operating room to be rejected by the surgeon. This economy feature measurably conserves the buyer's investment dollar.
Ask your dealer
BARD-PARKER COMPANY, INC.
DANBURY, CONNECTICUT
Investigate these new B-P HANDLE features
DISTAL ENDS . . . redesigned for use in blunt dissection
ELONGATED HANDLES . . . for deep surgery
A B-P PRODUCT

We cordially invite you to visit our Booth No. 121 at the Convention.

The undernourished, underweight individual, whether man, woman or child, requires special dietetic attention. COCOMALT, three times daily in milk, when extra calories and additional food essentials are needed, is often recommended by the profession. As a between-meal feeding, it has also proven of value.

Recent studies[1] show that in groups of both children and aged the addition of COCOMALT to the diet in regular amounts resulted in substantial weight gains and improved blood picture. Further mentions are made by medical commentators[2] with inclusion of COCOMALT in successful diet lists for thin patients.

The vitamin-mineral character of this malted food drink supplies important nutrients in diets for all ages. COCOMALT also provides a drink whose taste appeal acts as an incentive to drink more milk.

Cocomalt

. . . for both normal and therapeutic diets . . . contains calcium, phosphorus, iron . . . Vitamins A, B_1, D . . . Quick energy and body building nutrients.

COCOMALT
Enriched Food Drink for All Ages
R. B. DAVIS COMPANY • Hoboken, N. J.

[1] Arch. of Ped.—56:Nov. 1939
Medical Rec.—Aug. 21, 1940.

[2] Medical Rec.—150:1:1939;
Arch. of Ped.—57:488 (July) 1940

Protective Dressings

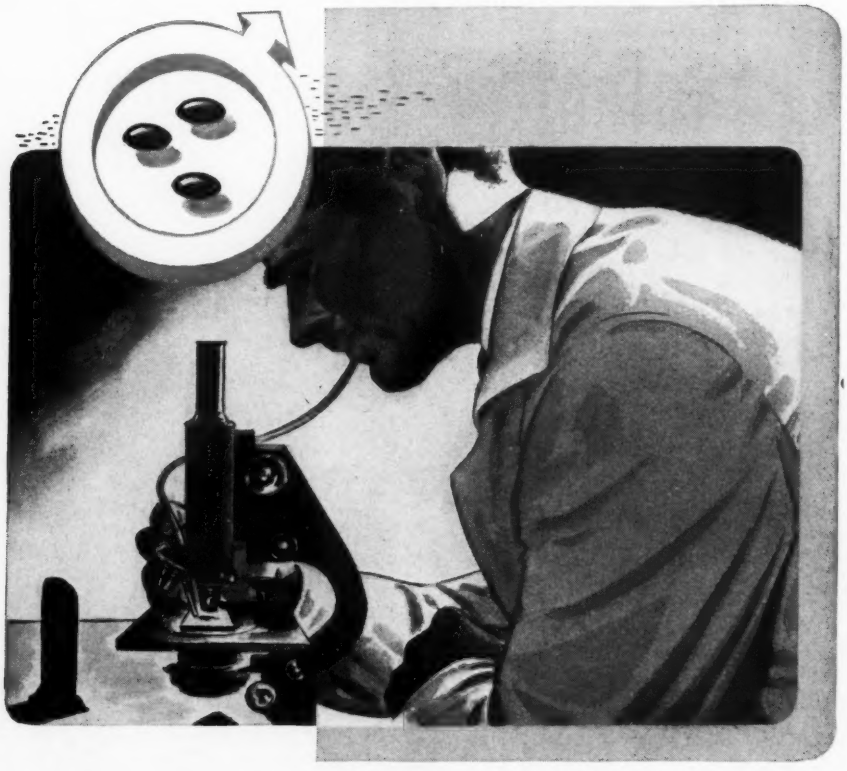
● Red Cross Cotton provides bulk and protection in the application of dressings. It is sterile, absorbent, soft and clean. Supplied in convenient-size dispensing cartons up to 1 lb.

ORDER FROM YOUR DEALER

RED CROSS COTTON

Johnson & Johnson

NEW BRUNSWICK, N. J. CHICAGO, ILL.



Maintain Normal Hemoglobin Levels

℞

HEMATINIC PLASTULES*

● Hematinic Plastules provide ferrous iron in small soluble elastic capsules—a modern, convenient dosage form. Where iron therapy is indicated, Hematinic Plastules can usually be relied upon to bring about a steady, rapid rise in hemoglobin. Their administration is seldom complicated by gastric disturbance.

Hematinic Plastules are an economical iron preparation especially effective for the treatment of the iron deficiency anemia of pregnancy, for chronic blood loss, or post-infection anemia.

Hematinic Plastules are available in two types, Plain or with Liver Concentrate, in bottles of 50 and 100.

*REG. U. S. PAT. OFF.

THE BOVININE COMPANY

8134 McCORMICK BOULEVARD • CHICAGO, ILLINOIS

A new Vi-Delta Vitamin Product—

VI-DELTA MULTI-VITAMINS

(Capsules)

Lederle

Vitamins A, B, C and D

A valuable supplement to the vitamin-deficient diet

"VI-DELTA MULTI-VITAMINS *Lederle*" have been developed to meet the needs of the physician in the many cases where it is desirable to supplement the diet with Vitamins A, B Complex, C and D.

The advantages of providing generous unitage of each of these important vitamins in a single, convenient capsule are readily apparent, both on the score of facilitating the patient's compliance with the physicians' instructions, and as a means of assuring consistently uniform dosage.

Physician's Sample. Actual size.

EACH VI-DELTA MULTI-VITAMIN CAPSULE (0.2 gram) contains 8 vitamins:

VITAMIN A—5000 U. S. P. XI Units (Int. Units)
VITAMIN B_1 (Thiamine Hydrochloride) —1 mg.
VITAMIN B_2 (Riboflavin)—1 mg.
VITAMIN B_6 (Pyridoxine)—0.25 mg.
NICOTINIC ACID—5 mg.
SODIUM PANTOTHENATE—2 mg.
VITAMIN C (Ascorbic Acid)—25 mg.
VITAMIN D—500 U. S. P. XI Units (Int. Units)

The vitamin A and D concentrate used in this product is obtained from the liver oils of Tuna fish and Shark, so blended as to provide high uniform content of Vitamins A and D. A palatable product results that is remarkably free of fishy taste — no flatulence and eructations commonly associated with the use of fish oil products.

In packages of 25, 50 and 100 capsules.

LEDERLE LABORATORIES, INC.
30 ROCKEFELLER PLAZA NEW YORK, N. Y.

Visit Lederle Booth No. 48 at the Southern Medical Association Meeting, Municipal Auditorium, St. Louis, Mo. — Nov. 10 to 13

VEGEX AND VEGEX-VITAFOOD DRIED BREWERS YEAST FOR THE COMPLETE VITAMIN B COMPLEX

"The simplest definition of the vitamin B complex is that it is an assemblage of the water-soluble vitamin factors present in yeast." (The Lancet, November 2, 1940, page 558.)

Vegex, the autolyzed extract of grain grown brewers' yeast, has long been the standard for the complete vitamin B complex in important medical centers throughout the world as well as in private practice.

Thiamin, riboflavin, B_6, nicotinic acid and the components of the "filtrate factor" are all contained naturally within the yeast cell. The autolyzing or self-digestion process breaks open the yeast cell, thereby making the contents of the cell more readily available.

Autolyzing the yeast frees or develops a potent anti-anemic principle which has been identified as the extrinsic factor. There have been over sixty published reports in medical literature on the successful use of Vegex in the anemias.

When the vitamin B complex is required it should be remembered that there is no more potent or complete source than brewers' yeast or its extracts like Vegex.

In their article on "Riboflavin Deficiency in Man" (*New England Journal of Medicine*, 221:921-926, 1939), Jolliffe, Fein and Rosenblum state that they found Vegex relieves both riboflavin deficiency and pellagra.

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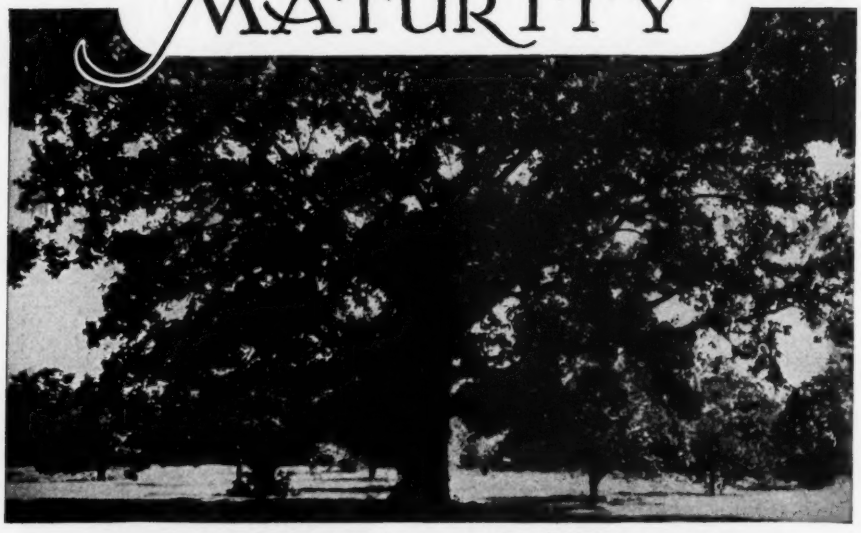

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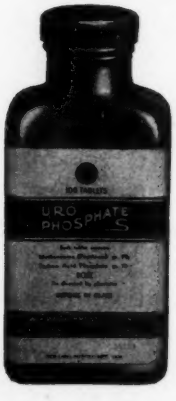

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Literature on Request

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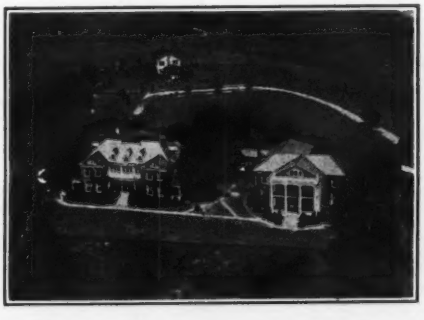

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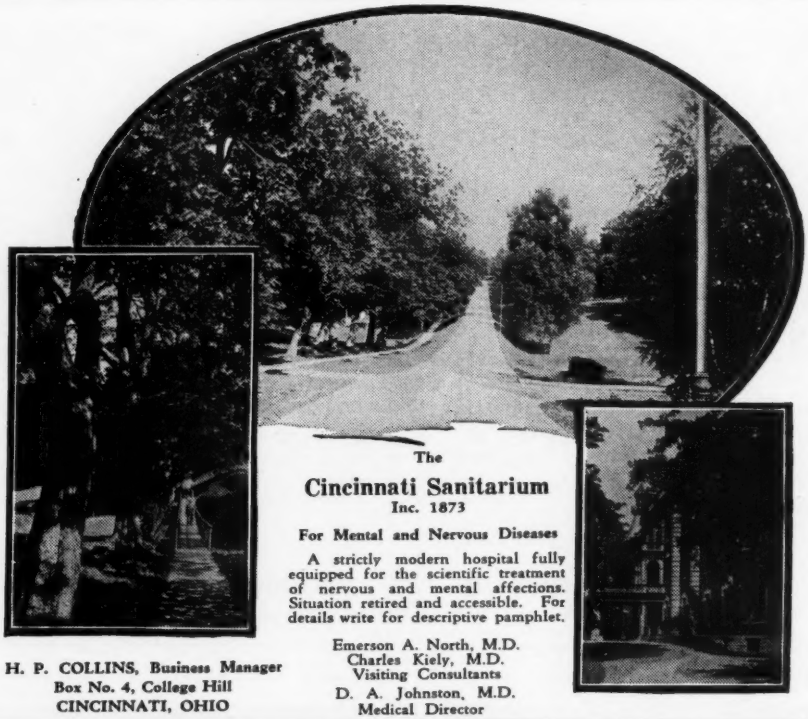

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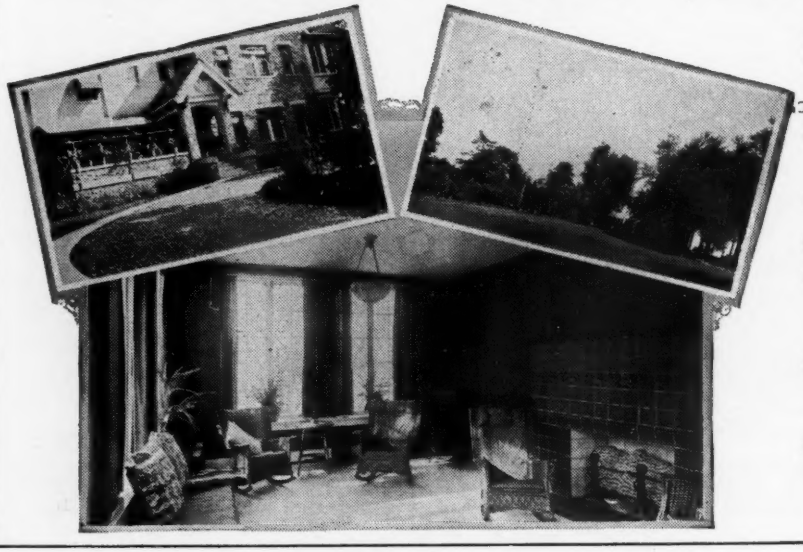

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Indications: Reports indicate that Cobra Venom Solution, H. W. & D., is particularly helpful in relieving severe pain associated with malignant disease. It has also been used to relieve pain in certain forms of arthritis, herpes zoster, Parkinson's disease and other neurologic disorders. In some cases the solution alone is effective; in others it is necessary to use it in conjunction with an analgesic. Dosage of morphine and other drugs may be reduced in a majority of patients.

The solution does not produce the objectionable reactions of morphine, is not habit-forming; the margin of safety is wider; patients do not develop tolerance. Dosage is usually reduced rather than increased after relief has been established. No serious untoward reactions or changes in the blood or vital organs have been reported, but the solution should be used under careful medical supervision.

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LOCAL USE OF SULFATHIAZOLE IN DERMATOSES*

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The sulfonamide drugs have been used in the treatment of streptococcal infections by oral administration since their introduction in 1939. Mayo and Miller[1] and Harrell and Brown,[2] at the Mayo Clinic, reported good results in the treatment of wounds with the local application of these drugs. In October, 1940, we began the use of 5 per cent sulfathiazole† in an ointment base in the treatment of pyogenic dermatoses, other conditions complicated by secondary pyogenic infection, and a few conditions unrelated to the pyodermias.

CASES TREATED

There were 94 patients in this series. Of these, 58 were primarily pyodermias (*Table 1*), 26 were other conditions complicated by secondary coccogenous infection (*Table 2*), and 8 were in no way related to coccogenous infections, but were included to note results of this treatment in other conditions (*Table 3*). Two cases of chancroid and one of tinea kerion were also treated. All but two of the patients were ambulatory and reported to the outpatient department daily for observation. Eight did not return after the first visit.

PREPARATIONS USED

Five per cent sulfathiazole ointments were prepared, using various ointment bases. The majority of our cases were treated with sulfathiazole in an ointment base consisting of anhydrous lanolin and petrolatum;[7] some were treated with the drug in hydrous lanolin and petrolatum,* and the remainder were treated with the drug incorporated in a vanishing cream base.† A 5 per cent solution was used but only to determine the action of the drug in vitro.†

MODE OF ACTION OF THE DRUG ON CULTURE MATERIAL

Nine petri dishes containing agar and nine containing blood agar were used. Sulfathiazole powder was dusted on one of the plates, a 5 per cent solution of sulfathiazole was poured on another plate, and on a third 5 per cent sulfathiazole ointment was placed. No organisms grew on any of these plates. On the remaining 15 plates material from impetigo contagiosa and ecthyma were inoculated. Immediately after inoculating the 15 plates with infected material, three were dusted with sterile talcum powder, three with sulfathiazole solution, three were spread with 5 per cent sulfathiazole ointment, and three were dusted with sulfathiazole powder. The remaining three were not treated. On those plates dusted with sterile talcum powder and those untreated, there were luxuriant growths of *Staphylococcus aureus*. In those plates treated with sulfathiazole powder, the 5 per cent ointment, and the 5 per cent solution of sulfathiazole, there was no growth of organisms in the areas covered by the drug.

This led us to believe that when the drug is used locally, it is bacteriostatic.

METHOD OF TREATING PATIENTS

In the 48 patients with impetigo contagiosa and ecthyma, one half the patients were prepared for treatment by removing the crusts prior

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*Prepared and supplied by Bernard McNamara, B.Sc.Ph., of the School of Pharmacy of the University of Maryland.

†Prepared and supplied through the courtesy of Frank Reinish, B.Sc.Ph., of the Pharmacy of the Johns Hopkins Hospital.

to the application of the ointment, and in the remainder the application of the ointment was the sole therapeutic procedure. In the former group, involution was somewhat more rapid.

RESULTS OF THERAPY

The healing of the lesions in impetigo contagiosa and ecthyma with the local use of sulfathiazole ointments indicated that this method of treatment is effective. In only one patient of this group did the lesions fail to heal. In two cases of impetigo contagiosa a contact dermatitis was caused by the application of the ointment. When the ointment was discontinued and boric acid ointment was applied, the impetigo contagiosa and the complicating dermatitis involuted. The shortest time in which complete involution in a case of impetigo contagiosa occurred was three days. The longest period of time was 32 days, but in this case the condition

COCCOGENOUS DERMATOSES

Clinical Entity	Number Cases	No. Previously Treated with Other Drugs	Average Healing Time with Sulfathiazole Ointment in Days	Greatest Number of Days to Heal with Sulfathiazole Ointment	Least Number of Days to Heal with Sulfathiazole Ointment	Treatment Failures with Sulfathiazole	Complete Involution	Questionable Results	Patient Not Followed
Impetigo contagiosa	25	8	6.95	14	3	1	21	1	2
Ecthyma	20	2	10.6	32	5	0	17	0	3
Ecthyma and impetigo	3	1	10.6	14	8	0	3	0	0
Paronychia	2	1	7	7	7	0	1	1	0
Sycosis vulgaris	4	1	9.5	14	5	0	2	0	2
Dermatitis repens	1	1	5	5	5	0	1	0	0
Postoperative carbuncle	2	2	17.5	21	14	0	2	0	0
Postoperative abscess	1	1	7	7	7	0	1	0	0

Table 1

OTHER CONDITIONS COMPLICATED BY SECONDARY COCCOGENOUS INFECTION

Clinical Entity	Number Cases	Number Previously Treated with Other Drugs	Average Healing Time with Sulfathiazole Ointment in Days	Greatest Number of Days to Heal with Sulfathiazole Ointment	Least Number of Days to Heal with Sulfathiazole Ointment	Treatment Failures with Sulfathiazole Ointment	Good Results	Questionable Results	Patients Not Followed
Traumatic ulcer in diabetes	1	0	8	8	8	0	1	0	0
Traumatic ulcer following desiccation	1	0	10	10	10	0	1	0	0
Secondarily infected seborrheic dermatitis	4	3	7.75	10	4	0	4	0	0
Ulcer following accident	1	0	7	7	7	0	1	0	0
Infectious eczematoid dermatitis	1	1	7	7	7	0	1	0	0
Contact dermatitis secondarily infected	8	3	8	14	3	0	8	0	0
Pediculosis capitis secondary infection	1	1	9	9	9	0	1	0	0
Eczema, secondarily infected	7	3	7.5	10	4	0	6	0	1
Epidermophytosis with secondary infection	2	2	8	14	2	0	2	0	0

Table 2

CONDITIONS TREATED WITH SULFATHIAZOLE OINTMENT WHICH DID NOT RESPOND TO TREATMENT

Clinical Entity	Number Cases Treated	Average Length of Time Treated in Weeks Before Treatment Was Stopped	Number of Failures
Epidermophytosis	3	2 wks.	3
Contact dermatitis	1	1 wk.	1
Granuloma inguinale	2	2 wks.	2
Erythema induratum	1	3 wks.	1
Dermatitis herpetiformis	1	2 wks.	1

Table 3

was complicated by tuberculosis ulcerosa, severe secondary anemia and poor environmental factors.

The remainder of the cases of coccogenous dermatoses involuted in from 5 to 8 days with the exception of two carbuncles, which had been incised. These latter two cases took 14 days each for complete healing.

In *Table 2* there was a group of 26 patients in which the primary condition was not coccogenous. However, in all these cases there was secondary pyodermic infection, and although the primary condition was not benefited by the application of the sulfathiazole ointment, the complicating secondary infection was controlled. It is our opinion that the results were equal or slightly superior to gentian violet and far superior to results obtained with ammoniated mercury ointment. The drug is valueless in granuloma inguinale, epidermophytosis, uncomplicated contact dermatitis, erythema induratum, and dermatitis herpetiformis. Good results were obtained in two cases of chancroid and one case of tinea kerion.

It has been stated that the local application of sulfathiazole solution and ointment cause a measurable concentration of sulfathiazole in the blood stream.[3] Blood level determinations were done on our cases after continuous application of the drug for one week and in no instance was a trace found in the blood stream.

CONCLUSIONS

(1) A 5 per cent ointment of sulfathiazole has been used locally in 94 cases.

(2) Sulfathiazole ointment, whether a grease or greaseless base is used, is effective in the treatment of coccogenous dermatoses.

(3) Contact dermatitis occurred in two cases due to application of the ointment.

(4) This ointment is especially useful in those cases in which the application of gentian violet is objectionable.

(5) Sulfathiazole ointment is superior to ammoniated mercury ointment in the treatment of the pyodermias.

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REACTIONS FROM THE USE OF SULFATHIAZOLE*

THEIR FREQUENCY AND TREATMENT IN UROLOGIC CASES

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In our experience sulfathiazole is efficacious in the treatment of all urinary tract infections with the exception of those due to pyocyaneus and gamma Streptococcus fecalis, which are rather resistant to the drug. In 300 urological cases, all of which were hospitalized, in which sulfathiazole was given either to combat infection or as a prophylactic measure to prevent infection, we have found that a higher percentage of reactions, due to the administration of the drug, occurred in the older age group and in the immediate postoperative period. By judicious administration of the drug we believe that many of the toxic manifestations can be prevented. We wish to report our analysis of the reactions we have observed and the measures taken both to prevent and to mitigate the relatively few severe toxic manifestations.

It is an observed fact that the sulfonamides are not tolerated as well in the older age groups. Fifty-one per cent of our series of 300 cases were

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*From the James Buchanan Brady Urological Institute, Johns Hopkins Hospital, Baltimore, Maryland.

over the age of 60 years, and 77 per cent were over the age of 40.

The average dose was 3 grams daily, and the average duration of treatment was 8.5 days. In no instance did the daily dose exceed 6 grams a day, and extreme caution was used in the intravenous administration of sulfathiazole.

Of these 300 cases, 89 showed some reaction to the drug, and of these 89 cases 53, or 17.6 per cent, showed a toxic reaction, all of which yielded promptly to treatment. There were no fatalities in this series. Under toxic manifestations we considered dermatitis, conjunctivitis, hematuria, anemia, leukopenia, nystagmus, partial reduction in the urinary output, and nausea and vomiting. The other 36 cases, or 12 per cent, were composed of those cases which showed only a rise in temperature, nausea, hiccoughs or drowsiness, none of which was regarded as a toxic reaction.

In analyzing those 89 cases in which reactions occurred, it was found that no reactions occurred in the group in which the drug was given as a prophylactic measure during the immediate preoperative period. There were 36 patients in this group.

In those cases in which no operation was performed, 67 in all, only 15 cases showed any form of reaction, or 22.3 per cent. Of the remaining 187 cases, in which the drug was given, the course of therapy in 88 cases included the first 3 postoperative days. In these 88 cases there were 35 reactions of all types (39.7 per cent). Even such reactions as a rise in temperature, although not necessarily a toxic reaction, confuse the clinical picture, especially during the first 3 postoperative days. If we eliminate those cases in which plastic operations were done on the genito-urinary tract, all in young people, and also those in which the urinary tract was not opened, there were 57 cases left, in which 27 showed some reaction (47.3 per cent). This would seem to indicate that the administration of sulfathiazole in the immediate postoperative period in older patients who have undergone operations on the urinary tract is accompanied by a high incidence of some form of reaction.

Of the 109 operative cases whose course of therapy did not include the first 3 postoperative days, there were 39 who showed some form of reaction (35.7 per cent).

Despite the fact that these patients were in the older age group in which the incidence of reaction to sulfathiazole is higher, and also despite the difficulty of sterilizing the urine in those cases in which drainage tubes have been used for many days, as is the situation in many urologic cases, the urine was sterilized in 18 per cent of our cases. Furthermore, in those plastic operative procedures in which the urine was sterile preoperatively and in which sulfathiazole was given in an attempt to keep the urine sterile, this result was accomplished in 42 per cent of the cases.

Reports in the literature on reactions from the use of sulfathiazole appear to substantiate our observations that the older age group of patients do not tolerate the drug as well as the younger group and have more severe manifestations of toxic reactions when they do occur. Arnett[2] reported a case of hematuria, lumbar pain, moderate oliguria, and thiazole crystals in the urine in a 72-year-old woman with pneumonia, following the administration of 14 grams of sulfathiazole in 2 days. These symptoms disappeared 3 days after the drug was stopped. Pepper and Horach[10] have reported a case of crystalline concretions of sulfathiazole in the renal tubules, pelves and bladder found at autopsy in a 77-year-old patient, who clinically showed hematuria and oliguria following the administration of 28 grams of sulfathiazole in 4 days. Knoll and Cooper[8] reported a case of hematuria and sulfathiazole crystals in the urine of an 80-year-old man given a total of 22 grams of the drug in 5 days for the treatment of pneumonia.

We have found that prompt administration of fluids both by mouth and intravenously together with cessation of the drug is sufficient to eliminate toxic symptoms.

PARTIAL REDUCTION IN THE URINARY OUTPUT

The most feared complication of sulfathiazole therapy, according to the literature, is the development of partial reduction in the urinary output, with or without a rise in the blood urea. We have observed 13 cases of this complication in 300 cases (4.3 per cent), only one of which was severe. In each case by stopping the drug and forcing fluids, both by mouth and intravenously, the toxic manifestations were completely eliminated. However, in every case but 1 it was possible to prevent the development of severe symptoms by use of the daily record of fluid intake and output which is charted every 6 hours in the Brady Institute. As soon as any patient treated with sulfathiazole showed any reduction in his fluid output for any given 6-hour

period he was immediately placed under close observation and the drug stopped.

The development of fever in a patient being treated with sulfathiazole is a complicating factor in that often other complications, such as pneumonia, cannot immediately be eliminated from the differential diagnosis. Usually fever, in the presence of a normal white blood cell count, indicates that the drug is at fault.

However, in the postoperative case the white blood count is not always to be relied upon due to other factors, and this makes the differential diagnosis of drug fever more difficult. In any case of suspected oliguria, however, we promptly stop the drug. In one case cessation of the drug was not sufficient, and fluids had to be forced for several days. This was our most severe reaction. The following is a brief abstract of the case:

BUI 29881.—A. Q., a 62-year-old white man, was admitted with carcinoma of the prostate, urinary retention and urinary tract infection due to *Staphylococcus aureus*. The blood urea was 48 mg. per cent on admission, but after 48 hours on catheter drainage it fell to 32 mg. per cent. The 'phthalein output at this time was normal. The urine showed many white cells, a few red cells, a few granular and hyaline casts. The patient was given sulfathiazole for 10 days preoperatively, and 5.5 days postoperatively, 4 grams a day. He tolerated the drug well until the fifth postoperative day, when he developed nausea and vomiting. The blood urea, which had been normal, rose to 68 mg. per cent. However, the patient had a low grade fever, together with rales at both bases of the lungs, and it was felt that he might be developing pneumonia. On the morning of the sixth day the urinary output was diminished. The drug was promptly stopped and fluids forced both by mouth and intravenously. The urinary output on the sixth day was 175 c. c., on the seventh day 150 c. c., on the eighth day 275 c. c., and on the ninth day 770 c. c. It was 4 days after the drug was stopped before his symptoms of uremia began to disappear. The improvement was rapid thereafter and the urinary output and blood urea were normal on discharge. There was some increase in the number of casts and red blood cells in the urine up to 10 days postoperatively, but at no time were any sulfathiazole crystals seen on microscopic study of the urine.

The other complications in this case were the development of a marked erythematous, urticarial eruption over the entire body on the fifteenth postoperative day and a fall in the hemoglobin from 85 to 65 per cent.

The complicating factor in his case was the difficulty of making a differential diagnosis of drug reaction in the face of definite signs of pneumonia (see *Table 1*).

A second case with partial reduction in the urinary output was C. B. (BUI 30052), a 58-year-old white man with a large ureteral calculus and sterile urine, who was given sulfathiazole for prophylactic purposes to prevent infection of the urinary tract. Renal function was normal. The patient received 2 grams on the day prior to operation (ureterolithotomy), 4 grams the day of operation, 6 grams on the second day and 4 grams on the third postoperative day, a total of 16 grams over 4 days. The patient had nausea on the fourth day of therapy, the third postoperative day, and a slight reduction in the urinary output. The fluid intake on this day was 2,872 c. c. and the output 1,150 on the third postoperative day. On the following day, the fourth postoperative day and 24 hours after the drug was stopped, the urinary output was 1,200 c. c. on an intake of 4,600 c. c., but the blood urea had risen from normal levels to 76 mg. per cent. On the fifth postoperative day, then 48 hours after the drug was stopped, the urinary output was 1,550 c. c. on an intake of 4,450 c. c., but the blood urea reached 100. On the fourteenth postoperative day the blood urea was normal. Sulfathiazole crystals were found in the urine on the fourth postoperative day. The highest blood level was 6.9 mg. per cent, on the third postoperative day, the day therapy was stopped.

This patient felt well after the fifth postoperative day and left the hospital with sterile urine.

The other cases of partial urinary suppression did not develop severe symptoms and usually showed only a transitory rise in the blood urea for 24 hours.

In our ambulatory patients who are treated

Day	Dose of Drug Grams	Blood Urea Mg. Per Cent	Blood Level Mg. Per Cent	Fluid Intake C. C.	Fluid Output C. C.	Remarks
1-7	18	32		*		
8	2			2800	1300	Day of operation
9	4			3450	1075	Rales, both bases; question of pneumonia
10	4			4900	2500	Hiccoughs
11	4			1750	800	Severe nausea and vomiting
12	4	68		3450	2500	W.B.C. 8,800
13	1		3.4	2700	900	
				3800	175	
15	0	106		4350	150	
16	0	132	3.6	2530	275	
17	0	168		280	770	
18	0			3805	1150	CO_2 comb. power 45.7 vols. per cent
19	0			3480	2435	W.B.C. 13,400
20	0	152		3800	3700	
23	0	140		3550	2700	Generalized maculopapular rash developed
27	0	84		3500	2700	
31	0	56		3800	2900	
41	0	36		3400	2600	

Table 1

*Normal

with sulfathiazole we have found that by having the patient void in a container of known size, usually a milk bottle, cases of partial reduction of the urinary output can be prevented.

CONJUNCTIVITIS

We have noted 9 cases of conjunctivitis in 8 patients in our series of 300 cases (2.8 per cent). Three patients showed bilateral conjunctivitis, 1 case first a unilateral and then a bilateral conjunctivitis, when the drug was given for a second course 8 days later. The other cases were associated with other reactions. One patient developed nystagmus, together with chills. The average daily dose was 4 grams and the average duration of treatment before reaction was 5 days.

All toxic symptoms subsided within 48 hours after the drug was stopped.

DERMATITIS

There were 6 cases with skin reactions, 2 being associated with other toxic reactions. These skin reactions were usually maculo-papular in character and extended over the face and chest. One case was urticarial in type and involved the entire body. The average daily dose was 3.5 grams, the variation from 1.5 to 6 gm., and the average duration of treatment was 6 days, with the variation from 1 to 23 days before the rash appeared.

HEMATURIA

Microscopic hematuria, believed due to the administration of sulfathiazole, was noted in 4 cases (1.5 per cent). On this service the presence of microscopic hematuria has been difficult to evaluate because a majority of our patients have had either operative procedures or instruments passed.

In none of the cases in which hematuria was observed were there any complications, and in each case the hematuria disappeared when the drug was stopped.

ANEMIA AND LEUKOPENIA

We have had 3 cases in which a mild anemia developed. There was a case of leukopenia in a patient of 68 years who, following perineal prostatectomy, was given 10 grams of sulfathiazole over a period of 3 days for a urinary tract infection due to Aerobacter. He developed a mild leukopenia accompanied by a sore throat. The blood level was 3.9 mg. per cent. All symptoms disappeared 5 days after the drug was stopped.

NAUSEA AND VOMITING

In 25 cases in our series of 300 the nausea and vomiting were of sufficient degree to cause stoppage of the drug. Four of these cases were associated with partial reduction in the urinary output. One case showed nystagmus. In most instances the nausea and vomiting developed in the first 48 hours of therapy, and in only 1 instance was a reduction in the dosage sufficient to reduce the amount of vomiting. The average daily dose was 2.7 grams, with a variation of from 1.5 to 4 grams a day.

The nausea and vomiting were of much less severity than is commonly observed in the administration of sulfapyridine. It also promptly disappeared on stopping the drug. The main indication for stopping the drug was that while these patients were nauseated they did not take fluids well and this is of vital necessity in our service.

The same patient may show one or several toxic manifestations to the administration of the drug. As an example of sudden marked multiple sensitivity to the drug we cite the following case:

BUI 29934.—Mrs. C. B., a 70-year-old white woman with colon bacilluria, was given only 3 grams of the drug. On the evening of the first day of treatment her temperature suddenly rose to 103. She had marked nausea, general malaise, severe conjunctivitis and a maculo-papular dermatitis of the face and chest. The drug was discontinued, but on the second day the temperature ranged between 101 and 103; the third day it varied from 100 to 101, and on the fourth day it fell to normal and remained so. By the fourth day the nausea, conjunctivitis and rash had also disappeared. The urinary infection was reduced, but not eradicated.

MINOR REACTIONS

Drug Fever.—A rise in temperature has been the most common reaction in our series, occurring from the first to the twentieth day of treatment, usually around the sixth to the seventh day. We have noted 48 temperature reactions in 43 patients in our series (14.3 per cent), 5 reactions occurring in patients who previously had shown this reaction. In 30 cases there were no toxic reactions accompanying the fever and we do not include these cases showing fever alone in the toxic group, since there is no indication that fever alone is harmful. Upon stopping the drug the temperature fell to normal usually within 24 hours, and not later than 3 days. In our experience, temperature reactions are usually of 4 types: (1) sudden, rapid rise in temperature during the first 48 hours of therapy; (2) gradual delayed rise in temperature, begin-

ning 3 days or more after sulfathiazole is instituted and rising to a peak several days later; (3) accumulative temperature reaction, which usually comes on in a week or more, most often at the end of 10 or 12 days, with a sudden or gradual rise in temperature which drops to normal precipitously on cessation of sulfathiazole; (4) rise in temperature which appears to be due to induced sensitivity or hypersensitivity to the drug in an individual who previously had been able to tolerate the drug without reaction.

Type 1. Sudden Rapid Rise in Temperature During the First 48 Hours of Therapy, 19 Cases.—Nine of these also had nausea, vomiting, chills, rash and conjunctivitis. The average temperature peak was 102.6, the variation from 100 to 105.4.

BUI 30490.—J. B., a 62-year-old man, following perineal prostatectomy, had a normal temperature, but was started on sulfathiazole because of a mild urinary tract infection. After 3 grams of the drug on the first day his temperature suddenly rose to 102.6. The next day the drug was stopped after 2 grams had been given, and the temperature on the third day fell promptly to normal. The infection was not eradicated.

Type 2. Gradual Delayed Rise in Temperature Beginning 3 Days or More After Sulfathiazole Is Instituted and Rising to a Peak Several Days Later, 21 Cases.—The average day of initial reaction was the eighth, and the initial temperature 101°. The average temperature peak was 102.6°, which was reached on the tenth day. In 3 instances the peak temperature was reached 24 hours after the drug was stopped. The following case is typical:

BUI 30496.—M. C., a 66-year-old colored man, following perineal prostatectomy, had a mild urinary tract infection due to *Staphylococcus albus* and pyocyaneus. He was given 2 grams of sulfathiazole a day for 8 days. On the fifth day the temperature rose to 100.4°, on the sixth day it was 101, on the seventh day 102.2, and on the eighth day 104.2, when sulfathiazole was discontinued. The next day the temperature fell sharply to normal. The infection was greatly diminished, but not completely eradicated.

In some cases the patient may take the drug for several days, then show a sudden, precipitous rise in temperature, followed by a rapid fall when sulfathiazole is discontinued. As an example:

BUI 30124.—M. W., a 30-year-old colored man, was given 6 grams of sulfathiazole a day for 6½ days as a prophylactic measure following operation. On the seventh day the temperature suddenly rose to 104°, but when the drug was stopped the temperature fell to normal in 2 days.

Type 3. Cumulative Temperature Reaction Which Usually Comes on a Week or More After Sulfathiazole is Begun, Most Often at the End of 10 or 12 Days, with a Sudden or Gradual Rise in Temperature Which Drops Precipitously on Cessation of the Drug, 8 Cases.—In these the initial temperature reaction was so low, the average being 101°, that the reaction was not regarded as sufficiently severe to be due to sulfathiazole, and was believed to be due to other causes, but the temperature did not fall to normal until the drug was discontinued. The average temperature peak in these cases was 103, and in this group the development of the peak temperature was associated with or followed by partial reduction in urinary output in 3 cases, conjunctivitis in 2, nausea, dizziness and dulling of the sensorium in 1, nausea, vomiting, chills, dizziness and severe malaise in 1, and rash with conjunctivitis in 1. A typical case is that of:

BUI 28484.—J. G., a 17-year-old man recovering from repair of hypospadias, was given 3 grams of sulfathiazole for 2 days, then 4 grams for 12 days. The drug was stopped on the fourteenth day, when suddenly, with sterile urine, the temperature rose sharply to 103, and on the morning of the following day to 104, but the same evening it fell sharply to normal and remained so.

Type 4. Rise in Temperature Which Appeared to Be Due to Induced Sensitivity or Hypersensitivity to the Drug in an Individual Who at Some Previous Time Had Been Able to Tolerate the Drug Without Reaction.—This induced hypersensitivity may also be manifested by conjunctivitis or dermatitis. In 2 cases the diagnosis was confused with pneumonia and the diagnosis of drug reaction was not established until after the reaction had become severe while chest signs were absent.

As examples of induced sensitivity or hypersensitivity to the drug following previous tolerance, we cite the following case:

BUI 29950.—I. S., a 61-year-old man, underwent perineal prostatectomy. Before operation the urine was found to be infected with *Staphylococcus albus* and he was given 2 grams of sulfathiazole a day for 4 days, with no temperature rise or other reactions. Six days after operation, at which time the temperature was normal, he was again started on sulfathiazole, but after being given 1 gram of the drug his temperature rose suddenly to 105.2. The next day he was given 6 grams and the temperature ranged between 102 and 103. On the following day he was given another 6 grams and the temperature was 104.2. The next day he received only 4 grams, and the temperature went down to 102.6. The drug was then stopped, and on the following day the temperature promptly fell to normal. Nine days later he was given a test dose of 1 gram of sulfathiazole and in 12 hours the temperature rose to 104°. No more drug was given and in 16 hours the temperature fell promptly to normal and remained so.

Another case of so-called induced sensitization to the drug was seen in (BUI 23473), L. M. G., a 29-year-old white man, who on his first admission had a large prostatic and vesical calculus, with a proteus infection in his urine, and was given sulfathiazole, 2 grams a day for 18 days, with no reaction and with eradication of the proteus from his urine. He was readmitted a few months later for treatment of a suprapubic urinary fistula and a urinary tract infection due to staphylococcus and streptococcus, and on 4 grams for 3 days developed severe conjunctivitis, which cleared up within 2 days after cessation of the drug.

A similar situation was that seen in (BUI 29909), F. L. P., a 67-year-old man with benign prostatic hypertrophy and *B. coli* infection who, after transurethral resection, was given 1.5 grams of sulfathiazole for 6 days with no reaction, was discharged, and returned several weeks later for check-up. Because of slight persistence of the infection he was given 3 grams of the drug for 3 days, but he developed a marked conjunctivitis, which disappeared very shortly after the drug was discontinued, but sterilization of the urine had been effected.

Like other observers, we have also noted that patients who are sensitive to one or another of the sulfonamide drugs are often sensitive to all of them, including sulfathiazole, and this sensitivity is often quite marked and sudden in appearance on administration of the drug

Kneeland and Mulliken,[7] in 16 out of 21 cases of lobar pneumonia treated with sulfathiazole, in which the total dose varied from 23 to 82 grams, observed an excess of antibody at the time the temperature became normal or thereafter. Three-fourths of the patients treated with sulfapyridine did not show antibody formations. They felt that there appeared to be a greater stimulation of immune mechanism in patients treated with sulfathiazole than in those treated with sulfapyridine. Abernethy[1] was struck by the frequency of eosinophilia (in 6 out of 35 cases) following administration of sulfathiazole, in which the total amount of the drug given in each case varied from 9 to 99.5 grams, and the average was 38.9 grams.

DELAYED REACTION TIME

Patients being treated with sulfathiazole frequently complain of slowness in thinking. Patients in our outpatient department who are employed in skilled tasks say that they are unable to execute their routine tasks with the usual speed and efficiency. This fact is of such importance, we feel, that any ambulatory patient is advised that he will not be so efficient in his routine tasks, and that he should avoid any skilled labor. One of the authors, who was treated with sulfathiazole, noted that there was also some disorientation in addition to marked difficulty in the execution of routine tasks.

Hiccoughs.—In 6 cases hiccoughs were present. These may be associated with other reactions. In all cases the hiccoughs ceased within 48 hours after stoppage of the drug.

Calculus.—We have not observed the development in any case of stones in the urinary tract nor of crystalline concretions in the urine, except in an 8-year-old boy. This case, following repair of hypospadias, was given sulfathiazole 2 grams daily for 7 days postoperatively in order to aid wound healing. Due to a slight reduction in the urinary output, the drug was stopped. On the seventh day, when the wound was dressed, a small calculus was found in the skin incision which was found to be composed of sulfathiazole crystals.

Nausea.—Nausea alone, without any other symptoms, was noted in 6 cases and resulted in the drug's being stopped. The nausea disappeared in 24 hours after the drug was stopped.

REPORTS OF REACTIONS IN THE LITERATURE

Carroll, Kappel and Lewis,[4] in a series of 200 cases, found that 15 per cent of the patients complained of various toxic manifestations: abdominal pain, nausea, vomiting, headache, anorexia, melancholia, weakness, cutaneous rash, diarrhea, excitability and conjunctivitis. In a considerable portion of the group the drug had to be discontinued on account of reaction.

Reinold, Flippin and Schwartz,[12] in the observation of 83 cases treated with sulfathiazole, noted slight vomiting in 8 cases, microscopic hematuria in 5, dermatitis in 3, and psychosis in 3. But they found a transitory depression of kidney function in nearly all their patients.

Abernethy, in a study of 35 cases of pneumonia, noted the following toxic reactions: nausea and vomiting, 5; fever, 5; delirium, 4; severe headache, 2; dermatitis, 1; nitrogen retention, 1; hematuria, 1; drop in red blood cells and hemoglobin, 4; drop in white blood cells, 4; eosinophilia, 6.

Burkholder and Bang,[3] in a series of 100 male patients with gonorrhea treated with sulfathiazole, noted the following complications: rash, 6; conjunctivitis, 5; urticaria with swollen joints, 1; nausea, 1; fever, 5; leukopenia, 1. They felt that overdosage was the cause of these reactions.

PREVENTION OF TOXIC REACTIONS

Moderate doses of sulfathiazole, not in excess of 4 grams and usually 3 grams a day, are given on our wards. We have found that an increase

in the dosage is not accompanied by increased therapeutic effects. Furthermore, we are cautious in the administration of intravenous sulfathiazole to patients with impaired renal function, due to the very high blood levels reached. The drug is stopped whenever a blood level of 10 mg. per cent is found, since we have observed that in urinary tract infections it is not necessary to have a high blood level, and that the higher blood levels are often followed by some toxic symptom.

The administration of sulfathiazole in the immediate postoperative period to patients of 60 years of age is considered most carefully, and if possible is delayed until the fourth postoperative day. When the fluid intake and the fluid output are charted every 6 hours, we believe that nearly all cases of partial urinary suppression can be prevented, and all cases can be detected early so that there is no severe complication.

The development of a reaction such as fever should cause the drug to be stopped, for in our experience many of these cases are followed by other additional manifestations.

All patients have their hemoglobin, white blood count and blood urea checked before the drug is started and at least twice a week thereafter. In the outpatient department, we have found that sulfathiazole can be administered with fewer reactions than accompany sulfanilamide or sulfapyridine. Each of the outpatients has his hemoglobin and white blood count checked before the sulfathiazole administration is begun. The patient is never given more than 15 grams at any one time, and the dose is limited to 3 grams a day for not more than a 10-day period. The patient is seen, if possible, 48 hours after the drug is begun, and at the end of 5 days. If there are no toxic symptoms and if the blood studies are normal, he is continued on the drug for another 5 days and is given another 15 grams for this purpose.

To prevent cases of partial urinary suppression, we have urged each outpatient to void in a container of known size and to return to the dispensary if his output falls below one quart a day. In the younger age group, such as our outpatients are, we have found that this schedule keeps reactions at a minimum.

CONCLUSIONS

We feel that sulfathiazole is the most valuable aid in the treatment of infections of the genitourinary tract, and also that it aids in the healing of surgical wounds by preventing infections.

In a series of 300 consecutive cases treated with sulfathiazole, all of which were hospitalized and in which the average dose was 3 grams a day and average duration of treatment 6.5 days, 89 patients showd some form of reaction. Of these 89 patients 53 (17.6 per cent) showed one or multiple toxic reactions. All of these toxic reactions yielded promptly to therapy, which usually consisted of simply stopping the drug. These toxic reactions were as follows: partial reduction of the urinary output, 13 cases; conjunctivitis, 9 cases; dermatitis, 6 cases; nausea and vomiting, 25 cases; hematuria, 4 cases; anemia, 3 cases; leukopenia, 1 case; nystagmus, 1 case. There were 36 other cases (12 per cent) which showed only a rise in temperature, nausea, hiccoughs or drowsiness, none of which were regarded as toxic reactions. In these cases the administration of the drug was stopped. The incidence and severity of reaction appears to be definitely greater in the older age group of patients and in the operative group, especially when the drug was administered during the immediate postoperative period.

Prevention of toxic reactions, we believe, is aided by moderate dosages, careful charting of the fluid intake against urinary output every 6 hours, stopping the drug when there is any reduction in the urinary excretion, close observation of the blood level of sulfathiazole, the blood urea or non-protein nitrogen, and the hemoglobin and white blood count.

In our outpatient department, where the patients are in the younger age groups, we do not prescribe the drug for a period of longer than 10 days and do not give the patient more than 15 grams of sulfathiazole at any one time. Furthermore, he is urged to observe the amount of urine voided and to return if that output falls below one quart a day. Otherwise, the observations correspond with those on the in-patients, the statistics for which are presented here.

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THE VALUE OF THE CULTURAL METHOD FOR THE DIAGNOSIS OF GONOCOCCAL INFECTIONS*

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INTRODUCTION

Advancement in the field of medicine today is directed chiefly along two lines, namely: improvement in treatment and improvement in diagnosis, whether it is by laboratory or clinical means. Realizing this, it is with surprising interest that we observe the rapidity with which the medical profession adopts new methods of treatment as compared to the reluctance and distrust that is placed in new but proven methods of diagnosis.

Within the last few years, through the use of the improved cultural methods for the isolation of Neisseria gonorrheae in conjunction with routine smears, there has been available to the general practitioner as well as to the specialist a more efficient and accurate method of establishing a correct diagnosis of gonorrhea.

This method has not been widely accepted as practical and its use has been limited to a few medical centers.

It still seems to be the popular belief that demonstration of gram-negative intracellular "coffee-bean" diplococci in a direct smear is the only procedure of value in diagnosing a gonococcal infection. This impression is also gained from the teachings in bacteriology classes of some of the larger medical schools.

REVIEW OF LITERATURE

In reviewing the literature of the past ten years, in an effort to establish a comparison between the efficiency of smears and cultures in the diagnosis of gonorrhea, there are available the reports of the examination of some 13,783 specimens. In these examinations an attempt to establish a diagnosis of gonorrhea was made by means of both a smear and culture. The diagnosis of gonorrhea was rendered in some 4,482 cases. Of these there were obtained both a positive smear and culture in some 2,817 cases, or 62.84 per cent of the total. Positive smears only were obtained in some 471 cases, or 10.52 per cent of the total. Positive cultures only were secured in 1,194 cases, or 26.64 per cent of the total. The summation of these figures shows that of the 4,482 cases of gonorrhea reported, 3,288 diagnoses of neisserian infection could have been made by smear alone, but this is only 73.24 per cent of the total, as in 26.64 per cent of the cases, or in 1,194 instances, only a positive culture was secured from the material examined. Some 89.48 per cent, or 4,011 cases, could have been diagnosed, therefore, by the culture method alone (*Chart 1*).

Review of the literature	
13,783	specimens examined by smear and culture
4,482	diagnoses of gonococcal infection
2,817	(62.84 per cent) cases, positive smear and culture
471	(10.52 per cent) cases, positive smear only
1,194	(26.64 per cent) cases, positive culture only
Therefore	
3,288	(73.24 per cent) cases, positive smear
1,194	(26.64 per cent) cases, positive culture only
4,011	(89.48 per cent) cases, positive cultures

Chart 1

From these figures one may readily evaluate the use of cultures in the diagnosis of gonorrhea.

Investigation during the last 10-12 years into the feasibility of culturing the gonococcus has been marked by several distinct advancements. The many types of media, most of which were relatively complicated to prepare, have been replaced by relatively simpler media of proven value. McLeod[6] and his associates introduced an oxidase test that is of great value in detecting the neisserian colonies on plates with mixed flora. Still other investigators have shown that most strains of gonococcus flourish best in 8-10 per cent carbon dioxide.

REVIEW OF CASES AT TOURO INFIRMARY

Over a five-month period some 621 specimens were submitted to the pathology laboratory at Touro Infirmary to be examined for Neisseria

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gonorrheae. They represented cultures from the departments of obstetrics, gynecology, urology, medicine, ophthalmology, pediatrics and orthopedics. They were collected by a rather varied number of technics, but we advised that the routines given below be adhered to as closely as possible.

The specimens were from the female urethra and cervix, the male urethra, the eyes, Skene's gland, Bartholin's gland and the vaginal vault. At the time that cultures were taken smears were also made, with the idea in mind that the same material was to be examined by both the smear and culture methods.

Of the 621 specimens taken it was possible to make a diagnosis of gonococcal infection in some 119 instances, or in 19.66 per cent of the cases. In this group 38 specimens (31.93 per cent) produced a positive culture as well as a positive smear, whereas 33 cases (27.73 per cent) rendered a positive smear alone.

In some 48 cases (40.33 per cent) the diagnosis of gonococcal infection was possible by the culture method alone. In these cases it was possible to obtain a positive culture, whereas the smear examined showed no intracellular gram-negative diplococci. Examination by smear alone, therefore, would have rendered only 71 positive diagnoses, or merely 59.66 per cent of the total, and 40 per cent of the cases would have been overlooked (*Chart 2*).

As seen in *Chart 3*, there are definite discrepancies in the results of the collected cases as compared to those cases studied at Touro Infirmary. That such a small number of cases rendered both a positive smear and culture was due to several factors, namely: that a larger percentage of the Infirmary cases were more acute than those of the collected group. A most important point is that the smears in Touro cases were examined on an average of only 4-5 minutes as compared to the 30 minutes examination

Cases at Touro Infirmary

621 specimens examined by smear and culture

119 (19.66 per cent) diagnoses of gonococcal infection

38 (31.93 per cent) cases, positive smear and culture

33 (27.73 per cent) cases, positive smear only

48 (40.33 per cent) cases, positive culture only

Therefore

71 (59.66 per cent) cases, positive smear

48 (40.33 per cent) cases, positive culture only

86 (72.26 per cent) cases, positive culture

Chart 2

	Touro Cases	Collected Cases
Specimens examined	621	13,783
Diagnoses of gonococcal infection	119	4,482
Positive smear and culture	38 (31.93%)	2,817 (62.84%)
Positive smear only	33 (27.73%)	471 (10.52%)
Positive culture only	48 (40.33%)	1,194 (26.64%)
Therefore		
Positive smear	71 (59.66%)	3,288 (73.24%)
Positive culture only	48 (40.33%)	1,194 (26.64%)
Positive culture	86 (72.26%)	4,011 (89.48%)

Chart 3

that some investigators with the collected group gave their slides. The culture media used in our group is especially adapted for the chronic cases which are extremely difficult to diagnose by smear alone.

In this group (*Chart 4*) material for examination was obtained from the cervix and urethra of the same 197 women, making in all a total of 398 cultures and smears for study. Of this entire group, in only two instances were both a positive smear and culture obtained. Only 5 urethral specimens rendered a positive smear alone, while in 19 instances a positive culture was obtained with a negative smear. Six positive cervical smears were found in this group as compared to 12 cervical cultures that were positive, yet showed no diagnostic organisms on smear. In examining a total of 143 specimens from the vagina definite gonococcal infection was found in 23 cases. Eight of these cases produced both a positive smear and culture, four cases yielded a positive smear alone, yet in 11 instances there was obtained only a positive culture, diagnostic of gonococcal vaginitis.

Some 21 separate cervical cultures were taken. Of these, 5 produced both a positive smear and culture, one showed gram-negative intracellular coffee-bean diplococci on smear and one case gave a culture that was positive for the gonococcus.

The urethral discharge from some 54 male patients with an acute urethritis contained the gonococcus in 42 cases. Nineteen of these produced a positive smear and culture, 19 a positive smear alone, and only 5 a positive culture alone.

Eye cultures were made on 4 occasions and in 2 cases both a positive smear and culture were obtained.

Neither positive smears nor cultures were ob-

	Urethral-Cervical (Combination)	Cervical	Urethral	Vaginal	Skene's Glands	Bartholin's Glands	Eye	Total
Number of specimens examined	197	197	21	55	144	2	1	4	621
Positive smear and culture	2	2	5	19	8			2	38
Positive smear only	5	6	1	18	4				33
Positive culture only	19	12	1	5	11				48
Doubtful smear	6	5		2	6				19
Doubtful culture	10	7			4				21

Chart 4

tained in the material examined from Skene's or Bartholin's glands.

In studying the gonococcus it was not always possible to say dogmatically whether a culture or smear was positive or negative, as oftentimes smears would contain definite gram-negative coffee-bean diplococci that were extracellular. Morphologically and tinctorially these organisms were the gonococcus, but because of their extracellular position they were not called positive, but were classified as doubtful.

This classification was also found necessary in reporting some of the cultures, as on several occasions the plates contained only one or two colonies which structurally were those of the gonococcus and which were suggestive morphologically and tinctorially. But because of their being killed by oxidization on the plates further culture and differentiation were impossible.

In studying such material we found 11 urethral and cervical smears that were doubtful for the gonococcus. Six of these proved definitely to be the gonococcus by subsequent culture. Six vaginal smears also fell in the doubtful group, two of these producing positive cultures in later examinations.

METHODS OF COLLECTING MATERIAL

The proper collection of material for culturing the gonococcus is the most important step in the entire procedure. As this responsibility usually rests with the clinician, it is his duty to secure a good specimen.

In collecting a specimen from a male patient, it is recommended by Pelouze[7] that the glans penis be washed with alcohol. Then strip the prostate, seminal vesicle and the urethra, whereupon the patient immediately passes a small quantity of urine into a sterile container. This material is then turned over to the bacteriologist for culture. Chin[3] found that the use of freshly voided urine, without the prostatic and vesicle stripping, is as good in securing a culture as actual urethral discharge. It must be remembered that this is a less painful and easier method of collection. A point of special value to physicians out of direct contact with a laboratory is that the gonococcus will remain viable in a urine specimen for some 20 hours.

In our work it has been noted that not a small number of positive cases produced a negative culture if the material cultured was a drop of acute urethral discharge. Best results were obtained if freshly voided urine was cultured. The urine (2-3 c. c.) was collected in proteose hemoglobin bouillon. This method was found to be satisfactory in both the acute and chronic cases. The exact cause for this discrepancy could not be determined, but speculation led to the belief that it may be due to a difference in pH at the distal end of the urethra, or possibly to a deteriorating effect of the discharge upon the organism.

In the female where the culture is of greater value the proper collection of material is a different and somewhat more difficult problem. It is essential that the patient not use a douche within 24 hours of the time of the examination. In securing a urethral culture, first wipe the vulva with a sponge or cotton. Then strip the urethra against the symphysis pubis, immediately passing an applicator into the external urethral orifice. The applicator is then transferred to the collecting broth at once.

Where a cervical culture is to be obtained, a speculum is passed into the vagina (here no

vaginal jelly should be used, and water is an advisable lubricant) and the cervix is then cleaned with a sponge. The cervical plug of mucus is then removed with an applicator. Next the cervix is gently compressed between the blades of the bivalve speculum, or a pair of forceps. After this has been done there is introduced into the cervical canal a dry sterile applicator which is firmly rubbed against the cervical mucosa. The applicator is then placed in the broth culture media.

In obtaining a culture from Bartholin's glands it is necessary only to transfer by means of a sterile swab some of the contents of Bartholin's glands to the desirable broth media.

Anorectal gonorrhea is an often overlooked possibility and material should be obtained by the use of the sterile swab after the region has been prepared with soap and water.

Purulent material from the conjunctivae or from abscesses may be transferred to the broth media by means of a sterile swab or a platinum loop.

If one desires to culture joint fluid, it is necessary that the fluid be collected aseptically and then planted directly to the chocolate plates, or suspended in the broth media if immediate streaking is not possible.

Vaginal cultures may be satisfactorily obtained by introducing a dry sterile applicator into the vaginal vault, then transferring the swab to the collecting suspension. Cohn[4] et al. recommended the following method of collection which he found somewhat advantageous. He suggests that a plain glass female catheter containing a small quantity of saline (N) be introduced into the vagina. The catheter is then moved about slightly within the vagina, resulting in a suspension of the vaginal secretion in the saline. The catheter is then removed and a small quantity is allowed to drop on a slide while the remainer is placed in the collecting broth. As it is often difficult to obtain proper cooperation from the younger patients, we feel justified in recommending the simple applicator for collecting.

In our work we have used a proteose peptone hemoglobin broth as a collecting suspension. The swab containing the material in question is placed in 2-3 c. c. of this proteose-peptone hemoglobin broth and it is then transferred to the laboratory for plating. If possible the specimen should be transferred to the bacteriology department immediately. If this is not possible the material suspended in the proteose-peptone hemoglobin broth should be kept in a refrigerator until delivery.

It is of greatest importance that these or other proven technics be adopted for collecting the materials for culture: upon it rests the advantage of the cultural method for the diagnosis of gonorrhea.

CULTURING

In our laboratory work-up we have attempted to combine simplicity and efficiency, for the former we feel is a great factor which will serve to make the procedure a more feasible laboratory routine.

The collecting broth used in these cases consisted of 2 per cent proteose peptone No. 3,* 0.5 per cent sodium chloride, and 0.1 per cent hemoglobin (dried). Some 2.5 c. c. of this material is tubed and autoclaved and all collecting swabs are immediately placed in this suspension. Voided urine (2-3 c. c.) is also placed in this medium. We found it advisable to leave the inoculating swab in the suspension, as it is later used in streaking the plates. The tubes in which the voided urine is placed are centrifuged from 2 to 3 minutes at a low speed and the sediment is streaked on the plates.

The medium used in culturing is a chocolate agar, made from bacto proteose No. 3 agar and bacto hemoglobin.*

The following is the recommended method of preparation which we found quite satisfactory. Suspend 9 grams of bacto proteose No. 3 agar in 100 c. c. of distilled water. Heating slightly will aid in mixing. Then dissolve 2 grams of bacto hemoglobin in 100 c. c. of distilled water. Filter through several layers of coarse cheese cloth to remove undissolved matter. Autoclave both mixtures for 20 minutes at 15 pounds of pressure. Cool, then mix agar and hemoglobin solution with a sterile technic. The mixture is then poured into sterile Petri dishes and allowed to harden. The chocolate media will remain usable for one week or 10 days if kept in a refrigerator.

The addition of 5 c. c. of sterile defibrinated blood to 100 c. c. of sterile single strength proteose No. 3 agar (80° C.) may be substituted for the bacto hemoglobin.

One plate is used for each broth suspension. The plates are streaked in most instances with the swab upon which the material is collected. Where no swab was present the platinum loop was substituted. All streaking should be done within 8 hours from the time of collection of the suspected material.

The chocolate plates are inverted, then placed in an air tight jar, in which a smokeless candle is burned. While this appears to be a rather crude method, it is simple and evidently provides the proper atmosphere, as plates incubated outside the jars fail in many instances to grow any detectable colonies of gonococci.

The jars are placed in an incubator for 24 hours at 37.1° C. At the end of 24 hours the plates are removed from the jars and allowed to remain in the incubator

*Obtained from the Difco Co.

for another 24 hours. This technic we feel is the most satisfactory, as it allows for the growth of those few proven strains of gonococci that grow outside of a carbon dioxide atmosphere, as well as those that grow in an atmosphere enriched with carbon dioxide.

At the end of 48 hours the plates are examined for colonies of the gonococcus. In this procedure the oxidase test[9 10 11] is used. One to two c. c. of a 1 per cent aqueous solution of p-aminodimethylaniline monohydrochloride is poured from a dropper bottle on the tilted open plates.

The plates are observed every 2-3 minutes for 15-20 minutes. During this time the colonies of Neisseria which are medium size and clear will undergo a series of color reactions, changing from pink to maroon to black. Usually the isolated well-formed colonies will change within 4-5 minutes. Mixed colonies, though, will oftentimes take 10-20 minutes to show the proper change.

Extensive use has shown that the oxidase reaction is not specific for the colonies of Neisseria. Thompson[12] has observed that a small gram-negative diplobacillus will give a positive oxidase test and is likely to confuse the diagnosis. We have observed that a gram-positive bacillus, morphologically a diphtheroid as well as a Monilia-like structure, will form the medium sized discrete colonies on chocolate agar that will render a positive oxidase reaction.

All suspicious colonies should be checked with a properly done Gram's stain. We feel that the use of a proper Gram's stain on organisms taken from a typical colony is evidence enough to warrant a diagnosis of gonorrheal infection. Doubtful colonies are subcultured on plain agar slants and on carbohydrate media. Neisseria gonorrheae will fail to grow on plain agar, ferments dextrose, but does not ferment maltose, sucrose or lactose.

If one wishes to make subcultures from the chocolate plates it is essential that the subculture be made before the colony turns dark maroon or black, as the stain is detrimental to the growth of the gonococcus, whereas it does not affect the staining qualities.

In several instances we have demonstrated colonies of N. gonorrheae on the plates that failed to take the oxidase stain. This was also found to be true by Pitts.[8] With this in mind it is essential that we also make further examination of colonies that are morphologically and culturally similar to the typical gonococcal colonies that do not give a positive oxidase reaction.

Whereas the diagnosis of a positive or negative culture for the gonococcus is self-explanatory, there are not infrequently obtained cultures that contain gram-negative diplococci, not morphologically like the typical gonococcus. These cultures we felt justified in calling doubtful or suspicious, for in several instances the smear was positive, and as shown later the organism did prove to be a gonococcus. In such cases repeated cultures and careful subculturing will oftentimes serve to establish a definite diagnosis.

ADVANTAGES

As was stated above, we feel that in general the present tendency to diagnose or exclude the possibility of gonococcal infection on the basis of a slide examination alone is purely inadequate and antiquated. By the use of proper cultural methods there is now available to the specialist as well as to the general practitioner a more efficient and reliable method of determining the presence of the gonococcus.

It is readily admitted that in the acute cases of gonococcal infection the smear is more often positive than the culture. In these cases there is seldom any difficulty encountered in making the proper diagnosis, for the causative agent can be readily identified on a good smear. Cultures, however, should be made on these cases also, for in some instances there is found an acute nonspecific infection superimposed upon a chronic gonococcal infection. This can be readily demonstrated by the use of a culture, whereas examination of a smear alone would tend to mislead to a diagnosis of a nonspecific infection alone. As seen above, in 5 cases of acute urethritis of the male (*Chart 4*) a positive culture alone was the sole diagnostic aid.

Not infrequently in large clinics the diagnosis of gonococcal infection is made on the demonstration of intracellular cocci alone, as shown by methylene blue smears. In several instances we have proven that these intracellular organisms were staphylococci and that the infection was truly nonspecific. This mistake is avoidable if a slide with a properly done Gram's stain is examined and this is confirmed with a negative culture.

The greatest value, in the use of cultures for gonococcal infection, lies in the diagnosis of the chronic cases of neisserian infection. Smears alone fail to give the proper picture. As shown above, 26.64 per cent of the collected cases and 40.33 per cent of our cases would have been missed had the examination of smears alone been relied upon. Culturing the suspected material naturally multiplies many times our chances of finding the gonococcus. Jones[5] showed that fol-

lowing the administration of therapeutic doses of sulfanilamide, the morphology of the infecting gonococcus was such that it could not be identified from smears alone. Here again cultures are of definite value in identifying the organism.

The cultural method should be used in conjunction with smears in proving cases to be cured. Carpenter[2] found that

"Cultures were superior to smears in the diagnosis and determination of cures in gonorrheal vaginitis, especially in subacute, chronic and carrier states during estrogenic treatment."

He[1] also demonstrated their marked efficiency in the diagnosis of rectal gonorrhea, where 93 per cent of the cases are diagnosed by culture alone.

In short, all cases of suspected gonorrhea, either acute, subacute or chronic, should be examined by means of a smear and culture before a definite diagnosis is rendered. And only after an adequate number of negative smears and cultures should a treated case be called cured.

SUMMARY

(1) There is now available to the physician a more accurate method of diagnosing gonococcal infection, namely: the use of cultures for isolation of the gonococcus, to be employed with the smear.

(2) Of 13,783 collected cases in which smear and cultures were made, the diagnosis of gonococcal infection was justified in 4,482 cases. In 1,194, or 26.64 per cent of these cases, a positive culture only was obtained.

(3) In the group of cases at Touro Infirmary, 40.33 per cent of the diagnoses of gonorrhea were based upon positive cultures alone.

(4) A discussion of the best methods of collecting the material for examination is given, as well as a description of the media used in the cultures.

(5) Culture of the gonococcus for diagnostic purposes and as a criterion for cure is proven far superior to the smear method alone, and a combination of smear and culture provides the most efficient and adequate method of diagnosis of gonococcal infection in modern day medicine.

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A PATHOLOGIST'S VIEW OF UTERINE LESIONS*

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For diagnostic purposes tissue from the uterus may be obtained by the following methods, namely: removal of the uterus with the cervix, removal of the uterus, leaving the cervix intact, amputation of the cervix, leaving the uterus *in situ*, biopsy of the cervix, curettage of the lining of the uterus and material passed spontaneously from the uterine cavity.

On account of the various means by which material for diagnosis was obtained, it will be necessary to discuss each of the methods separately.

The histories and physical findings and age of the patients were not given in the cases to be considered. In most instances the various types of material were sent to the laboratory for diagnosis without data. The results of the laboratory findings were reported mainly on a histologic basis. In some instances, curettings of both the mucosa of the uterus and a portion of the cervix of the same patient were sent to the laboratory together. The findings in these cases are reported under their respective headings.

In the following group the entire uterus was

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removed or only the supravaginal portion. The diagnoses were as follows:

ENTIRE UTERUS OR SUPRAVAGINAL PORTION

Infantile uterus	2
Acute endometritis	5
Tuberculosis	1
Glandular hyperplasia	12
Benign polypi	6
Fibromyomata	205
Fibromyomata with pregnancy	1
Adenomyomata	7
Sarcoma	1
Squamous cell carcinoma of cervix	14
Squamous cell carcinoma of cervix and fibromyomata of body	1
Adenocarcinoma of cervix	3
Adenocarcinoma of body	2
Pregnancy or retained products of pregnancy	12
Ruptured pregnant uterus	1
Negative	82
(Malignancies 6 per cent)	
Total	363

These lesions will be discussed briefly.

The diagnosis of uterus infantilis was made in two cases in which the organ was abnormally small. As a rule the cervix is large in comparison with the body[2] of the organ.

The condition may cause amenorrhea. It is congenital in origin, but occasionally small uteri[5] are found in chronic wasting diseases or in general atrophy of old age.

In five instances the diagnosis of acute endometritis was made. It is an inflammation of the mucous membrane of the uterus due to invasion by bacteria.[2] Numerous organisms such as staphylococci, streptococci and gonococci may cause the inflammation. The condition is usually followed by a generalized septicemia which is frequently fatal. In the non-pregnant uterus the most frequent cause of acute inflammation is the gonococcus. However, the incidence is infrequent, as the gonorrheal inflammation is usually limited to the cervix or passes beyond the body of the uterus and involves the oviducts. Acute inflammation of the endometrium may occur in the course of scarlet fever, smallpox and other infections,[5] or following curettage or douches. Microscopic examination[9] reveals edema of the stroma, superficial necrosis of the mucosa, diffuse leukocytic infiltration sometimes with darkly staining clumps of bacteria, septic thrombosis of the venous sinuses and frequently hemorrhages.

Only one case of tuberculosis was encountered. Tuberculosis[2] of the uterus almost always results from extension of the disease from the fallopian tubes. It is not an uncommon condition. The cervix[6] is rarely attacked. Microscopically, there are miliary tubercles or extensive caseous necrosis affecting mainly the endometrium.

In twelve instances the diagnosis of glandular hyperplasia was made. The cause of the excessive proliferation of the glands of the endometrium does not lie in the uterus proper, but is a manifestation of increased production of theelin[5] by the ovaries and also, perhaps, of disturbance in other glands of internal secretion such as the thyroid and pituitary. It is the usual finding in the so-called functional bleeding, in which nothing abnormal is detected upon physical examination of the patient. Functional bleeding[1] may occur at any time, is most often observed just before the onset of puberty or just before the menopause. Sterility is often associated. The microscopic examination shows a marked hyperplasia of the endometrial glands, many of which may be cystic.

Six cases were diagnosed as benign polypi. They are nodular or pedunculated growths originating in the glands of the mucosa of the cervix or of the endometrium which project into the cervical canal. It is a form of excessive hyperplasia. They often cause abnormal bleeding[6] from the uterine canal and must be differentiated from malignancies.

In 205 instances, the diagnosis of fibromyomata was made. They are the most frequent benign growths encountered in the uterus. Postmortem statistics show that 20 per cent of women have these growths, although some are of minute size. They may be single, but as a rule they are multiple. Usually[3] less than 10 are found, but sometimes there may be as many as 40 and they may range from microscopic size to growths weighing as much as 120 pounds. They make their appearance[2] during the childbearing age and often diminish in size after the menopause. Grossly, they are seen as nodules of varying size which are denser than the uterine wall and show distinct encapsulation. Histologically, there is a mixture of smooth muscle and connective tissue, the former generally predominating.

There is a case recorded in which multiple fibroids and pregnancy occurred together. The new growth took on an enormous increase in size during the pregnancy owing to the increased blood supply which the organ received.

Adenomyoma was the diagnosis in 7 instances. The tumor is sometimes called an endometrioma because, besides smooth muscle, it contains

glands and stroma resembling that of the endometrium. The uterus is generally enlarged and diffusely thickened, but sometimes the growths are well demarcated.

There was only one case in which the diagnosis of sarcoma was made. It is an infrequent tumor of the organ. Approximately 2 per cent of malignant growths of the uterus are sarcomata.[5] Most often it results from a malignant change in a fibromyoma and is called a myosarcoma.[3] Infrequently they arise from the normal wall. Microscopically the cellular character may vary but the tumor mentioned was composed of large round cells.

In 14 cases the diagnosis of squamous cell carcinoma was made. About 90 per cent of cancers of the uterus occur in the cervix while the remaining 10 per cent arise in the body.[5] It is seen most frequently between 40 and 60 years, but may be observed before 30 years of age and in advanced years. Carcinoma may arise in the cervix after operative removal of the body of the uterus. The most frequent starting point is the junction between squamous and columnar epithelia. It may arise as an indurated area or as an area of ulceration. In its advanced stages,[2] it appears as a hard, infiltrating growth with considerable ulceration or as a large, soft, necrotic cauliflower-like mass. Three histological varieties are seen, namely: a squamous cell type with keratinization, a squamous cell type without keratinization, and a very undifferentiated form.

There were three cases of adenocarcinoma of the cervix. It is an uncommon malignancy comprising about 4 per cent of cancers in this region. It may have its origin in the glands of the cervical canal or extend from the body of the organ into the cervix. Histologically, it reproduces glands[7] resembling those of the cervix. It is said to be less malignant in its course than the epidermoid tumor.

The diagnosis of carcinoma of the body of the uterus was made in two cases. It occurs at a later age than the epidermoid tumor of the cervix. Grossly, the tumor is more papillary in character than invasive, and gradually fills the uterine cavity. Invasion of the muscular wall takes place late in its course. The uterus is usually enlarged. Histologically, three types of growth are noted.[7] First, a papillary adenomatous form in which the cells are very atypical. In the second form, the glands are very atypical and enlarged and their cells stain deeply. The third form presents solid masses of epithelial cells without much differentiation into the glands. The growth of this tumor is slower than carcinoma of the cervix and a higher percentage of cures has been reported.

There was also one case of carcinoma of the cervix which was associated with multiple fibromyomata of the body. The relationship is probably accidental, each having arisen independently.

In 12 instances, uteri were removed in some stage of pregnancy. One uterus ruptured during the course of pregnancy and had to be removed as a life-saving procedure.

In 90 cases, or 25 per cent of the uteri removed, nothing of pathologic significance was found. They were, for the most part, removed from elderly women who had periods of abnormal bleeding. In the majority, the diagnosis of fibrosis uteri was made. In the latter condition the uteri were reduced in size owing to an increase in interstitial connective tissue and a reduction in the smooth muscle content. They were small and tough in consistency. Baker, who made a study of normal uteri at various ages, reached the conclusion that an increase of connective tissue and a reduction in smooth muscle occurs normally with increasing age.

The cervix alone was amputated in 9 instances. The diagnoses are summarized as follows:

CERVIX ALONE

Chronic endocervicitis	1
Erosion	1
Cystic degeneration	6
Prolapsus	1
Total	9

With the exception of prolapse of the cervix, the other lesions will be discussed under biopsies of the cervix. The diagnosis of prolapsus uteri is a gross one. It means descent of the uterus as far as the vaginal outlet. The cervix is often elongated as well as ulcerated.[4] The condition is usually due to weakening of the pelvic ligaments following childbirth, but occasionally it may arise in individuals who stand for long hours at a time.

Lesions observed following biopsy of the cervix are classified as follows:

LESIONS DETECTED BY BIOPSIES OF THE CERVIX

Erosion	194
Cystic degeneration	154
Mucinous degeneration	1
Glandular hyperplasia	26
Acute endocervicitis	10
Subacute endocervicitis	15
Chronic endocervicitis	47
Squamous cell carcinoma	44
Adeoncarcinoma	1
Negative	10
(Malignancies 11.4 per cent of total)	
Total	502

The diagnosis of erosion was made in 194 cases. Erosions are bright red areas located on the vaginal portion of the cervix about the external os. The surface of the lesion may be ulcerated or covered by a granulation-like tissue[5] or by a thin layer of epithelium. They are believed to be produced by leukorrheal discharges from the uterine cavity. Often there is an infection present due to staphylococci, streptococci, bacillus coli, the gonococcus or other organisms. The irritating discharge causes the surface squamous epithelium to be denuded. Histologically, the squamous epithelium is abraded and usually a layer of columnar epithelium replaces it. The deeper glands are hyperplastic and often undergo cystic changes. There is a diffuse infiltration of polymorphonuclear leukocytes, lymphocytes and sometimes plasma cells and eosinophils. Numerous dilated capillaries are usually present, but most authorities do not believe that a true granulation tissue is formed.

In 152 of the biopsies a diagnosis of cystic degeneration was made. It is a related condition and a more advanced stage in the process.[3] After a time the inflammation begins to subside and the eroded surface is once more covered by squamous epithelium. The newly formed epithelium tends to close the mouths of the ducts of the glands and they undergo cystic dilatation. Grossly, they appear as bluish swellings of the surface and when the cysts[4] are punctured a thick glairy secretion exudes from them. Microscopically, in addition to the hyperplastic glands, many cysts, called nabothian cysts, are seen. There is also a proliferation of connective tissue of the stroma with a diffuse accumulation of lymphocytes.

A case which was classified as mucinous degeneration is probably an advanced stage of the preceding condition. There were just the traces of fibrous connective tissue stroma between the masses of mucoid secretion.

In 26 cases, the diagnosis of glandular hyperplasia was made. The microscopic findings were a hyperplasia of the cervical glands. The squamous epithelium covering the surface was either normal or increased in thickness. There were no inflammatory changes.

There were 72 cases in the group of endocervicitis which were subdivided according to their histologic characteristics into acute, subacute and chronic varieties. The division is arbitrary because the exact duration of any of these inflammations is not definitely known. Endocervicitis is a very common condition. The gonococcus is the most frequent causative organism of inflammation of the cervix in the non-pregnant state. Infrequently, other organisms are found. Cervical inflammations associated with lacerations or following abortions or childbirth are common. Pyogenic organisms, other than the gonococcus, are the usual causative agents. Likewise, prolonged menstruation, exposure to cold or hyperfunction of ovarian hormones may cause cervical irritation. Microscopically, the mucosa and fibromuscular wall are edematous. Infiltrations of polymorphonuclear leukocytes predominate in the acute stage, numerous lymphocytes as well as plasma cells and eosinophils are seen in the subacute stage, while lymphocytes predominate in the chronic phase. There is an accompanying hyperplasia of the cervical glands often with cystic changes.

In 44 instances, or 11.4 per cent of the cervical biopsies, malignancies were detected; 43 were of the epidermoid variety and one of the gland cell type. The malignancies were discussed above.

Nothing of pathologic significance was observed in 10 of the biopsies.

Besides biopsies, the following pedunculated growths, which either were suspended in the cervical canal or hung from the external os, are classified as follows:

PEDUNCULATED GROWTHS OF THE CERVICAL CANAL

Benign polypi	43
Fibromyomata	6
Total	49

Both of these conditions were previously discussed.

The following diagnoses were made following

the examination of curettings from the uterine cavity. They are classified as follows:

DIAGNOSES FROM CURETTINGS OF UTERUS

Glandular hyperplasia	187
Endometritis fungosa	11
Acute endometritis	26
Chronic endometritis	12
Retained secundines	119
Placental tissue (pregnancy not previously diagnosed)	58
Therapeutic abortions	2
Hydatidiform moles	5
Fibromyomata	4
Hemangiomata	2
Adenocarcinoma	18
Negative	104
(Malignancies 3.3 per cent)	
Total	548

The condition of glandular hyperplasia was discussed under lesions of the uterus proper. Endometritis fungosa is a more extensive type of glandular hyperplasia. The mucosa is thrown into long projecting folds often polypoid in character. It causes abnormal bleeding from the uterine cavity.

Acute endometritis is another inflammatory lesion which was previously taken up. However, chronic inflammation of the endometrium is not often encountered. In the cases in which the diagnosis was made there were signs of chronic inflammation such as infiltrations of lymphocytes, plasma cells and eosinophils. Chronic inflammation of the endometrium may follow acute inflammation or may result from retention of products of conception or possibly a gonorrheal inflammation. The latter is very infrequent.

By retained secundines is meant the retention of portions of the placenta or membranes in case of abortion or miscarriage. The diagnosis in these cases was evident upon gross examination and was confirmed histologically. In 58 cases, the diagnosis as to the cause of the abnormal bleeding was in doubt and placental tissue was found on microscopic examination. There were two cases of therapeutic abortion in which termination of pregnancy was found advisable.

In 5 instances the diagnosis of hydatidiform mole was made. This is not an uncommon condition and is said to occur in one out of 2,500 or 3,000 pregnancies. It represents an abnormal growth of chorionic villi in which the supporting tissue undergoes cystic degeneration. As a rule, the fetus does not survive. There is a rapid enlargement of the uterus with bleeding from its orifice. The diagnosis is readily made by macroscopic examination. Microscopic examination shows the cystic bodies to be composed of a loose edematous stroma surrounded by a proliferation of chorionic epithelial cells. The condition is benign, but it is estimated that about 5 per cent of the cases undergo transformation into the malignant chorionepithelioma.

The diagnosis of fibromyoma was made in 4 cases. This condition was previously described. The diagnosis is not usually made from curettings. The tumors were undoubtedly of the submucous polypoid variety.

In 2 instances the diagnosis of hemangioma was made. The condition is rare in the uterus. The diagnosis was arrived at from curettings. I have not seen a case of angioma in a uterus following surgical removal. It is possible that a very vascular fibromyoma can give a similar microscopic picture if a very vascular portion of the growth were removed.

There were 5 specimens which were passed spontaneously from the vagina. The microscopic diagnosis was benign polyp in one case, hydatidiform mole in another and clotted blood in a third. The two remaining cases were diagnosed as membranous dysmenorrhea. The latter condition[8] is characterized by discharge of the complete lining mucosa or portions of it at the regular monthly periods.

It is more frequent in the infantile type of uterus. Microscopic examination revealed only superficial portions of the mucosa. Sometimes it is accompanied by cramp-like pains, but at other times there are no symptoms.

SUMMARY OF CASES

	Cases	Per Cent
Malignant growths	74	5
Innocent new growths	226	15
Inflammatory lesions	117	7
Conditions related to pregnancy	198	13
Miscellaneous lesions, non-inflammatory, mainly hyperplastic	643	46
Negative	208	14
Total	1466	100

A series of 1,466 specimens obtained from the uterus by various means were examined both grossly and microscopically. In 74 cases, or 5 per cent, malignant tumors were found. The diagnosis of innocent neoplasms was made in 226 cases, or 15 per cent. Inflammatory lesions were found in 117 cases, or 7 per cent. Conditions relating to pregnancy were found in 198 cases, or 13 per cent. A group of miscellaneous lesions, neither inflammatory nor neoplastic, but mainly hyperplastic, numbered 643, or 46 per

cent, while in 208 cases, or 14 per cent, the appearance of the tissues was normal and no diagnosis was possible.

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DISCUSSION (*Abstract*)

Dr. Laman A. Gray, Louisville, Ky.—Dr. Fenton gives us an actual statistical review of the occurrence of gynecologic lesions. This yardstick should be applicable in almost any clinic, although in various parts of the country there must be variations due to incidence of venereal disease and race. The occurrence of fibroids, for instance, would probably vary with the percentage of colored population. His comprehensive review of the etiology and course of each disease seems most accurate.

I am surprised that pathologists do not require more information regarding patients, as Dr. Fenton has said that no history was sent him in most instances. This is particularly important in gynecologic pathology.

In 1466 specimens, 208 or 14 per cent had a normal appearance and no diagnosis was possible. These composed either curettings or excised normal uteri. It is most commendable that the diagnosis was not chronic endometritis or hypertrophic endometritis, as is the case with the large majority of pathologists over the country. Certainly endometritis or inflammation of the endometrium is insignificant except with retained membranes, submucous tumors or active salpingitis and such a diagnosis should not be made in functional bleeding cases. This faulty diagnosis is not always made because of the ignorance of the pathologist but because the surgeon demands it. Many surgeons cannot take a diagnosis of normal endometrium, but feel that the pathologist must find a definite lesion. It should be well known, though unfortunately it is not, that uterine bleeding of endocrine origin is accompanied by anatomically normal endometrium, except in the minority of cases where endometrial hyperplasia is present.

The endometrium reflects the activity of the ovaries, as a "sounding board," a term aptly used by Dr. Novak. The postmenopausal and early interval endometrium with straight or slightly curved glands and non-secretory epithelium indicates the presence of developing follicles and a moderate amount of estrogens in the circulation. The late interval and premenstrual endometrium with increasing tortuosity of glands and definite secretory epithelium indicates the corpus luteum in its varying stages of activity and the presence of estrogens and progesterone in the blood stream. In endometrial hyperplasia with overgrowth of endometrium, "swiss cheese" glands and absence of secretion, there is hyperestrinism and no progesterone. In atrophic endometrium there are very small amounts of estrogens and no progesterone. The gradations of endometrial development seem to indicate rather accurately the type and amount of hormones present.

By grading the endometrium in some such manner and correlating it with the history, particularly the date of the last menstrual period, the pathologist can give the clinician the greatest information regarding the endocrine imbalance of his patient. If the surgeon understands why the endometrium is called normal and receives this valuable information he will be delighted to let the almost completely inaccurate term "chronic endometritis" be deleted. There are many more points regarding endometrial biopsies, so much in vogue at the present, in which information regarding endocrine states including ovulation may be determined.

Dr. Harry C. Schmeisser, Memphis, Tenn.—I wish to comment on the high incidence of adenocarcinoma of the body of the uterus in this paper. That is not unique with Dr. Fenton. It seems that in other locations in the country they find a much higher incidence of this lesion than we do at the John Gaston Hospital in Memphis. For some years, I should say about nineteen years, we have been impressed with the scarcity of that particular lesion, although we have had a large number of curettements. It is very rare indeed that we are able to make that diagnosis from curettements, and even in cases that come to autopsy. We have gone to the trouble to illustrate the more typical cases that we have received because they are rare in our clinic.

I do not understand why this incidence is greater in other clinics. I am sure that we are not missing this lesion. We are looking very carefully. I wonder whether other clinics make diagnoses of malignancy cytologically instead of histologically. Believe me, when you make a cytologic diagnosis of a curettement you are liable to make a mistake. It is unusual to receive a bit of myometrium along with the endometrium to permit one to determine the histologic evidence of malignancy.

Dr. Fenton (closing).—All I can say about the supposed increase of adenocarcinoma of the body of the uterus is that generally there has been an increase over previous reports in most clinics of about ten per cent. Probably the incidence now is somewhere around 20 or 25 per cent. Why we have found a greater increase of adenocarcinoma of the body at West Virginia, or in the neighborhood of Morgantown, I cannot say.

SHOCK FROM POSTERIOR PITUITARY EXTRACT*

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Anaphylactic shock following the subcutaneous injection of posterior pituitary solution has been previously reported. This oxytocic has been the means of saving many lives threatened with fatal postpartum hemorrhage. Surely, no one would recommend its discontinuance. Since the

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drug may produce shock similar to that which follows hemorrhage, it becomes necessary to differentiate the shock of acute blood loss and that of pituitary extract sensitivity. Treatment for these types of shock is quite different. Pituitary extract shock responds dramatically to epinephrine, while shock from hemorrhage must be treated by whole blood or plasma transfusion. The following case illustrates this point so well that a report is justified:

CASE REPORT

Mrs. F. H. B., white, aged 35, gravida 10, para 9, was seen for the first time in August, 1937. She was 20 weeks pregnant at this time and a complete prenatal study revealed no evidence of disease. The history of all previous pregnancies indicated a remarkable absence of any complications and the parturition in each was spontaneous. She said that after the last four deliveries she had received an injection which was probably pituitary extract. On December 22, 1937, after an uneventful gestation to this date, there occurred a sudden, profuse vaginal hemorrhage accompanied by some abdominal discomfort. It was estimated from inspection of the blood that the patient lost about 200 c. c. The uterus was somewhat tense, but not rigid and the fetal heart was 145 per minute. The patient was removed to the hospital, where the membranes were artificially ruptured. At this time the bleeding had stopped, the blood pressure was 110/80, pulse 96, and the patient's general condition appeared good. Labor followed promptly the rupture of the membranes and after four hours of good labor, she delivered spontaneously a living female weighing approximately six pounds. The placenta followed promptly and a clot was attached over one-third of the placental surface. The diagnosis was partial premature separation of the placenta. There was about 100 c. c. of free bleeding after the third stage and the patient was given 1 c. c. of posterior pituitary.* Within two minutes the blood pressure dropped from 120/80, recorded during the delivery, to 50/0. The skin became cool and moist and the patient began to scratch herself violently about the chest and neck. The shock was attributed to blood loss, although this certainly had not exceeded 400 c. c. The important symptom of itching was ignored. Death appeared imminent. Donors had been matched at the time of admission and so the patient received 500 c. c. of whole blood without delay. While the blood was being given, the patient began to improve rapidly and this change was credited to the transfusion. She was perfectly well within a short time and had none of the appearance of a patient recently recovered from a shocking hemorrhage. This was commented upon at the time, but still the shock was attributed to hemorrhage.

Eighteen months after this episode, July 4, 1939, the patient again came to term after an uneventful pregnancy. She went into labor spontaneously, delivered normally, and after a short third stage was delivered of the placenta without difficulty. One c. c. of obstetrical pituitary extract was given subcutaneously according to routine and within two minutes the patient began to complain of violent itching, the blood pressure dropped to 60/0, and the skin became cold and clammy. Classical signs of shock appeared. Suddenly it dawned upon me that the patient was suffering from pituitary extract shock. She was given 5 minims of epinephrine (1-1000) every five minutes for three doses and recovery was almost immediate. A subsequent intradermal skin test with dilute pituitary extract gave a wheal reaction.

This case illustrates the necessity of watching carefully the patient who has received pituitary extract repeatedly in previous pregnancies. She may be sensitized. Differential diagnosis between this and other types of shock may be aided by looking for other evidence of allergic response, such as itching, sneezing, asthma and urticaria.

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*Obstetrical strength, Parke, Davis Company.

THE EFFECT OF B COMPLEX SYRUP ON THE CARDIOVASCULAR SYSTEM OF PREGNANT NEGRO WOMEN*

By M. E. GROOVER, M.D.†
Quitman, Georgia

Cardiac enlargement has been noted among pregnant women in the Health Department clinic. A study was planned to determine whether the cardiovascular changes noted in pregnancy were due to a deficiency in the B complex.

The patients attending the prenatal clinic of the Brooks County Health Department were divided into a treated and a control group.

A record card was arranged so that the following observations could be recorded at each visit:

(1) Area of cardiac shadow
(2) Blood pressure
(3) Circulation time
(4) Cardiac response to exercise
(5) Relative size of the retinal arteries

Due to technical difficulties it was necessary to eliminate the study of the area of the heart shadow.

In *Table 1* is shown the relationship of the controls to the treated group at the first visit. By following the column of probabilities one can see at a glance that the two groups are comparable with reference to the items listed.

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†Brooks County Health Department.

FIRST OBSERVATION

	Treated		Controls		Diff. Mean	Sigma Diff.	Diff. Sigma Dif.	Prob.
	Mean	Sigma Mean	Mean	Sigma Mean				
Syst. press.	113.00	1.51	11.63	1.75	1.37	2.30	0.596	0.55
Diast. press.	76.37	1.31	76.53	1.34	.16	1.87	0.086	0.94
Pulse press.	36.60	1.08	35.10	.969	1.50	1.452	1.035	0.303
A. V. ratio	56.80	1.70	58.35	1.57	1.55	2.31	0.671	0.50
Cir. time	12.70	1.26	13.45	1.36	.75	1.85	0.405	0.69
Card. res. exer.	8.66	0.38	9.00	0.28	0.34	0.47	0.723	0.47

Table 1

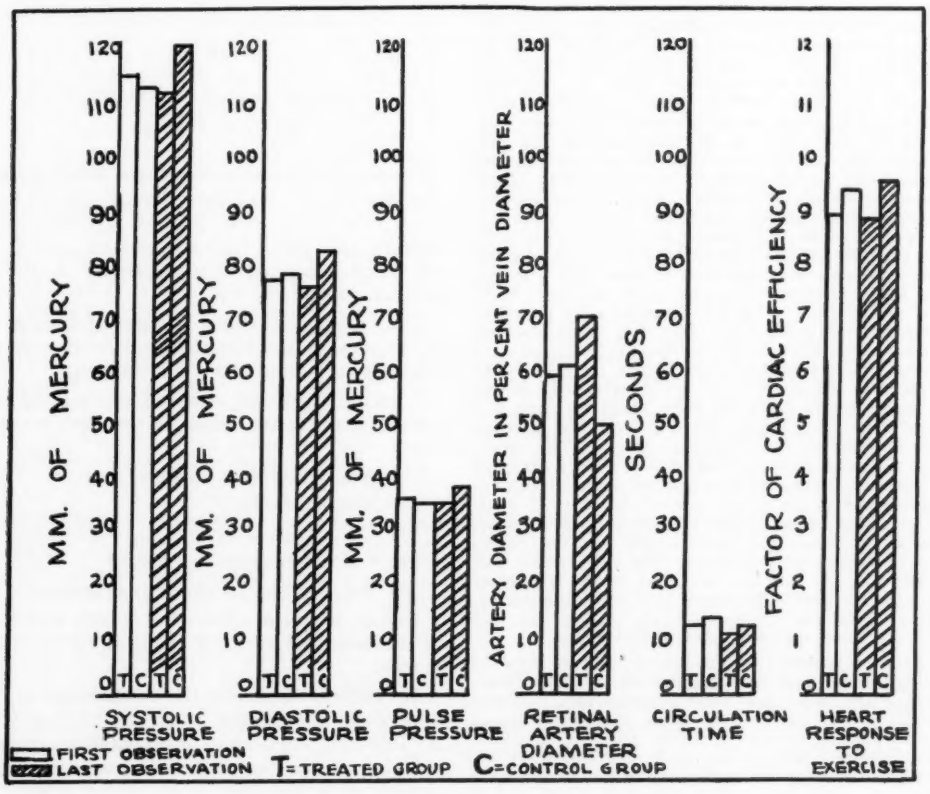

Chart 1

(1) The blood pressure was measured by a mercury sphigmomanometer by the same person throughout the experiment. Readings were taken at each visit.

(2) The ratio of retinal arteries to the diameter of the retinal veins was estimated while looking through the ophthalmoscope, a rough estimation, subject to the same error that would exist if one should try to estimate the relative size of the branches of two nearby trees.

(3) The circulation time was measured at each visit, using calcium gluconate, arm to tongue method.

(4) The cardiac response to exercise was determined in the following manner:

Immediately after exercise (squatting and standing 15 times in 7 seconds) the pulse rate was recorded. The decrease in rate after 2 minutes' rest was subtracted from the number. The resulting number is used to measure the cardiac efficiency. In each group the smallest number was given the value of 1.

Example: if A's pulse increased 40 and decreased 42 after rest, the result would be minus 2.

If B's pulse increased 20 and decreased 20, the result would be 0.

LAST OBSERVATION

	Treated		Controls					
	Mean	Sigma Mean	Mean	Sigma Mean	Diff. Mean	Sigma Diff.	Diff. Sigma Dif.	Prob.
Syst. press.	110.00	1.97	118.60	1.99	8.06	2.80	2.879	0.004
Diast. press.	74.70	1.19	80.30	1.39	5.60	1.83	3.060	0.0022
Pulse press.	35.30	1.08	37.45	1.11	2.15	1.55	1.38	0.164
A. V. ratio	68.48	1.84	48.77	1.65	19.71	2.47	7.98	0.00001
Cir. time	11.60	1.15	12.19	1.23	.59	1.68	.351	0.726
Card. res. exer.	8.50	.28	9.05	.31	.55	.42	1.310	0.1902

Table 2

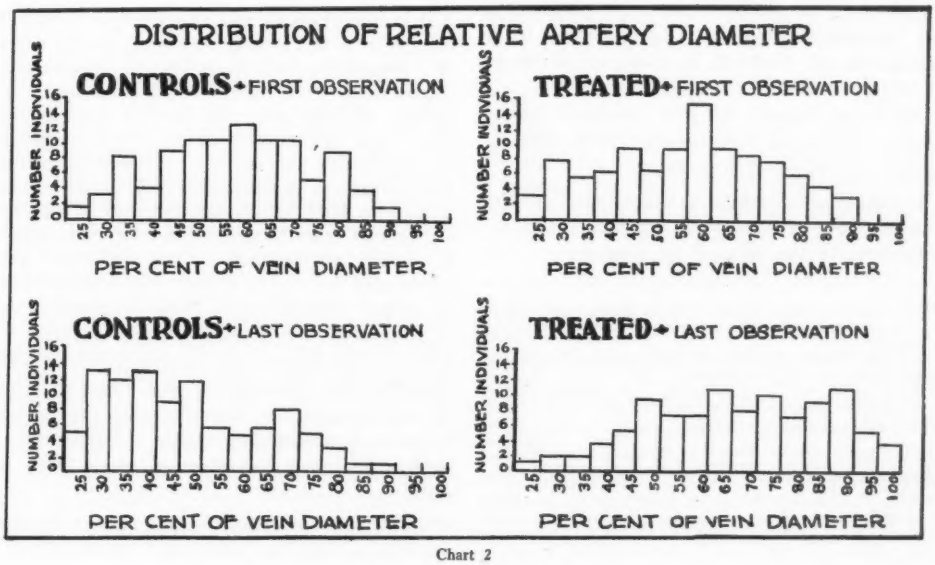
DISTRIBUTION OF RELATIVE ARTERY DIAMETER
CONTROLS • FIRST OBSERVATION
TREATED • FIRST OBSERVATION
CONTROLS • LAST OBSERVATION
TREATED • LAST OBSERVATION
NUMBER INDIVIDUALS
PER CENT OF VEIN DIAMETER

Chart 2

If C's pulse increased 30 and decreased 28, the result would be plus 2.

Now, giving the lowest value the value of unity, we have A equals 1, B equals 3, C equals 5, the lowest value showing the greatest efficiency.

Table 2 shows the behavior of the two groups with reference to the observations listed. Standard deviations have been worked out and the probabilities of obtaining these results by chance alone are tabulated in the column marked "Prob."

It is of interest to note that in the control group of 98 patients, 3 acute toxemias requiring hospitalization and 4 mild toxemias developed. In the treated group of 102, only 2 mild toxemias developed.

The treated group was given 15 c. c. of B complex syrup* daily. The group was cooperative and we have every reason to believe the preparation was used as per instructions.

The control group was left to the patient's usual diet, which consisted of vegetables in season and large amounts of cornbread and syrup and fat meat.

CONCLUSION

There is a tendency for negro women in Brooks County to experience an increase in blood pressure during the latter months of pregnancy. This increase in pressure is accompanied by a decrease in the diameter of small arterioles as seen in the retina.

The administration of a B complex supplement to the diet of these women had a definite tendency to reverse this process.

In this study there is a suggestion that the administration of vitamin B complex is helpful in eliminating the toxemia of pregnancy.

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*The B complex syrup used in this experiment was donated by E. R. Squibb & Sons. The following analysis is furnished by the manufacturer.

One 15 c. c. portion contains: B1 750 international units, riboflavin 150 gammas, B6 1,500 gammas.

Filtrate factors 375 Jukes Lepkovsky, and contains undetermined amount of nicotinic acid W factor and B4.

The chemical analysis is as follows:

	Per Cent
Total nitrogen	1.38
Fat (ether extract)	Trace
Dextrin	11.14
Invert sugar (as maltose)	36.63
Ash (mineral matter)	7.67
Moisture	23.70

TRACHEOTOMY*

A STUDY OF 100 CONSECUTIVE CASES

By G. S. Fitz-Hugh, M.D.
University, Virginia

Interest in the survey of a group of cases requiring tracheotomy developed from a desire to determine the reason for an apparently high incidence of deaths in our patients upon whom this procedure was performed. A similar study was made by Figi[1] in 1934, and, as he says, though little new information can be added to the subject, the review of a group of cases may serve to re-emphasize some points of practical value. The general problems in this group are somewhat different from those which he encountered.

Material.—The 102 consecutive tracheotomies herein presented were performed upon 100 patients. The records are those mainly from the Department of Otolaryngology at the University of Virginia Hospital. A small number of the cases were from the Department of Surgery. The records cover approximately a ten-year period. A large majority of the patients were indigents. The males outnumbered the females in the group 56 to 44. Eleven patients were Negroes. It is of interest to note that 40 patients were 2 years of age and under, with 10 of this group 1 year and under. The youngest was 7 weeks old and the oldest 69 years of age.

It is important to make an attempt to classify the cases in this group according to the degree of respiratory difficulty which necessitated tracheotomy. To do this with accuracy is obviously difficult and the method questionable. First were the elective cases in which respiratory difficulty was not present and tracheotomy was performed in anticipation of such a condition or to facilitate future therapy. Third was a group of cases in which total asphyxia was so imminent that tracheotomy was performed without regard for sterile technic or the assembling of proper instruments. Such operations were performed in the admitting room or upon the wards. The second and largest group of cases, classified as intermediate, was those in which definite respiratory difficulty was present and often of a progressive nature. The degree of asphyxia in this latter group more often ap-

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*Read in Section on Ophthalmology and Otolaryngology, Southern Medical Association, Thirty-Fourth Annual Meeting, Louisville, Kentucky, November 12-15, 1940.

No. patients	100
No. tracheotomies	102
Males	56
Females	44
Age	
Two years and under	40
One year and under	10
Youngest 7 weeks, oldest 69 years.	

Classification of procedure, based upon degree of respiratory difficulty:

Elective	35 (+2)
Intermediate	46
Emergency	19

Table 1

Groups	Total No.	Elect.	Int.	Emerg.	Deaths Trach.	Deaths
F. B. air and food passages	26	6	18	2	8	0
Diphtheria	17	3	1	13	12	1
Ca. of larynx	12	12	0	0	5	0
Laryngotracheobronchitis	10	1	9	0	5	0
Infections of neck	5	0	3	2	3	0
Traumatic injury, larynx	3	1	2	0	1	1
Tuberculosis larynx	3	3	0	0	2	0
Benign laryng. tumors	3	2	1	0	0	1
Laryngeal abscess	2	0	0	2	1	0

Table 2

The cases of laryngeal tuberculosis were from the Blue Ridge Sanatorium, Charlottesville, Virginia.

proached the emergency status than the elective. It is in this group that the insertion of some type of airway such as a bronchoscope, intubation tube, or Mosher tube[2] in the larynx can transform a disorderly procedure into an orderly one. Thirty-five cases were classified as elective, 46 intermediate, and 19 emergencies.

The primary pathologic conditions requiring tracheotomy have been grouped and are presented as follows: there were 24 cases in which a foreign body in the air passage and 2 in the esophagus eventually required tracheotomy. The respiratory difficulty usually resulted from the vegetal type of foreign body, secondary tracheobronchitis and trauma from removal instrumentation. The majority of these cases were, as expected, in the age group of 2 years and under. None of the 8 deaths which occurred could be attributed to the tracheotomy.

Diphtheria of the respiratory tract was responsible for 17 cases. In this group the majority of the procedures were classified as emergencies. In our hospital, all children having diphtheria are admitted to the Pediatrics Service where intubation, if necessary, is carried out by this staff. The otolaryngologist is called to perform a tracheotomy when intubation has failed. Thirteen deaths occurred, one as a definite complication of tracheotomy. Following tracheotomy these patients would obtain partial or total relief of their asphyxia, to be followed usually in a few hours by gradual recurrence of the difficulty, indicating an extension of the diphtheritic process into the tracheobronchial tree. The deaths were due to toxic carditis, asphyxia and bronchopneumonia. It seems justifiable to conclude that if intubation is not successful in relieving respiratory difficulty in diphtheria, then tracheotomy offers slight, further hope, but should be carried out as five cases in this group survived. Incidentally, two of these cases developed laryngeal stenosis, one requiring a second tracheotomy.

The third largest group of cases, 12 in number, were those patients suffering with carcinoma of the larynx, all males. The procedures were all elective ones, and though 5 deaths occurred, none could be attributed to tracheotomy, but to the advanced pathology. In 4 of these cases the patients were receiving palliative x-ray therapy, regardless of the hopeless nature of the condition. One patient required a second tracheotomy because of a recurrence of the neoplasm.

Ten patients, 7 under 2 years of age, had laryngotracheobronchitis of bacterial origin. Two of these cases had been previously intubated. Five deaths occurred, none of which could be classified as being a complication of tracheotomy. It is our belief that in this type of case tracheotomy is preferred to intubation, which alone is seldom adequate. As Richards[3] points out, tracheotomy not only furnishes a better airway but repeated bronchoscopies, if necessary, can better be performed through a tracheotomic fistula. A tracheotomic bronchoscopy in our hands is easier for the patient and the operator.

Infections of the pharynx and neck caused obstruction to the upper respiratory tract to a degree that tracheotomy was necessary in 5 cases. Two of the cases were emergencies. There were 3 deaths. The choice of an anesthesia is a problem here, especially when the cellulitis is marked. New,[4] while urging early tracheotomy in this type of case, also suggests ethyl chloride spray as an anesthesia of choice. The laryngeal structures were involved as a part of multiple body injuries in three cases.

Of the two deaths, one was due to bronchopneumonia.

Laryngeal tuberculosis requiring tracheotomy occurred in 3 cases. Two of these expired about one month after the procedure; the other patient has worn the cannula for 7 years. None developed infections of the wound; and in respect to this, Woodward[5] believes it is safer to perform the operation in two stages: first, exposing the trachea, and then completing the procedure 4 to 5 days later. Myerson[6] has emphasized that tracheotomy does not indicate a hopeless prognosis and that the prospect of a clean wound depends a good deal upon the quantity of the tuberculous laden sputum. Tracheotomy was performed in order to facilitate the treatment of benign laryngeal tumors in 3 cases. One of this group died of bronchopneumonia. There were 2 cases of laryngeal abscess in which emergency tracheotomy was performed. Tracheotomy was not a factor in the death of one of this group.

Limit of time and space does not permit anything more than listing a number of individual cases placed in a miscellaneous group, which will be found in *Table 3;* however, two of these cases will be mentioned to point out that poor technic and judgment were factors in their fatal termination. The first, a 16-months-old child with respiratory difficulty due to a retrolaryngeal abscess which displaced the larynx and trachea, was subjected to an unreasonable operative period in performing the tracheotomy. Efforts to

Case	Age Years	Diagnosis	Indications: Tracheotomy	Procedure	Results
1	52	Bilat. abductor paralysis (18 yrs.' duration) Post. thyroidectomy. Upper resp. infection	Resp. difficulty	Int.	Wearing cannula
2	54	Bilat. abductor paralysis (19 yrs.' duration) Post. thyroidectomy. Upper resp. infection.	Resp. difficulty	Int.	Died
3	51	Bilat. abductor paralysis (transient) Post. thyroidectomy	Resp. difficulty	Int.	Decan.
4	36	Adenoma thyroid (tracheal compression) Pregnancy. Bronchopneumonia	Resp. difficulty	Int.	Died
5	63	Carcinoma thyroid. X-ray therapy	Resp. difficulty	Int.	Died
6	43	Hodgkin's disease (cervical lymph nodes) X-ray therapy	Facilitate treatment	Elect.	Wearing cannula
7	44	Carcinoma tongue and pharynx X-ray therapy	Resp. difficulty Facilitate treatment	Int.	Wearing cannula
8	62	Endothelioma (cervical lymph nodes) X-ray therapy	Facilitate treatment	Elect.	Wearing cannula
9	39	Stenosis of larynx (tuberculosis)	Facilitate treatment (Plastic operation)	Elect.	Decan.
10	59	Retroph. abscess. Laryngotracheitis Hypert. heart disease	Resp. difficulty	Emerg.	Died
11	11	Acute bulbar poliomyelitis(?)	Resp. difficulty	Emerg.	Died
12	8 mos.	Atelectasis. Bronchopneumonia	Facilitate bronchoscopy Resp. difficulty	Int.	Died
13	16 mos.	Chemical laryngitis (aspiration ashes)	Resp. difficulty	Int.	Decan.
14	2	Ulcerative stomatitis. Acute pharyngitis Acute laryngitis	Resp. difficulty	Int.	Died
15	6	Pharyngeal stricture	Facilitate treatment	Elect.	Decan.
16	67	Phlegmon trachea	Resp. difficulty Facilitate treatment	Int.	Decan.
17	38	Bronchiectasis	Facilitate treatment	Elect.	Decan.
18	7 wks.	Cong. laryng. stridor (?)	Resp. difficulty	Int.	Died
19	16 mos.	Retroph. abscess	Resp. difficulty	Int.	Died

Table 3

Elect.—Elective
Int —Intermediate
Emerg.—Emergency

insert a bronchoscope were not successful. The child died shortly after the operation from exhaustion, toxemia, and pneumothorax. The second case, a middle-aged lady with a bilateral abductor paralysis and superimposed laryngitis, would no doubt have survived if an airway had been inserted before difficulty was encountered in carrying out a tedious tracheotomy. She expired as a result of cerebral damage, possibly from anoxia, which was no doubt directly attributable to the operation.

Observations.—From the survey of this group of 100 cases, certain observations may be made. Once respiratory difficulty begins, there is a tendency for it to be progressive in nature. In suspected displacement of the larynx or trachea, roentgenograms of the neck aid in locating these structures. Local anesthesia is the anesthesia of choice, unless some dependable airway has been inserted through the larynx, in which event ether is permissible. There seems to be no method of restraining that will keep some of the children entirely immobile, which, if known, would be of distinct advantage. The insertion of a bronchoscope, intubation tube or Mosher tube will aid in the performance of an orderly procedure. The vertical incision is the choice over the collar incision, as a rule. Suturing of the wound does not seem to aid the cosmetic result and will tend to promote subcutaneous emphysema and wound infection. The incision into the trachea included or was below the second ring in all of the cases, as far as could be determined from the records. A high tracheotomy, as Figi points out, is of advantage when a laryngectomy is later contemplated. The removal of a button of cartilage from the trachea was performed rarely. This procedure should have been carried out more often, especially in cases in which the cannula was to remain for a long period of time. The instillation of a cocaine solution into the trachea before incision to allay cough was recognized as being advantageous. In several cases in the aged, ossification of the tracheal cartilage had occurred and bone cutting forceps were a helpful addition to the instrument set-up. As will be pointed out later, the dissection of the fascia around the trachea should be given due consideration in order to prevent mediastinal emphysema. Extra length tracheal cannulas should be available for those cases having an increase in size of the tissues of the neck, for example, cellulitis and neoplasms. No difficulty was encountered in decannulating the patients, and no operative procedure was necessary in obtaining a closure of the fistula. The larger number of patients were decannulated in 6 to 10 days. One patient has worn a tracheal cannula for the past 7 years.

Complications.—The complications presented are those that were recognized as being secondary to tracheotomy *per se*. Three cases of pneumothorax were found to be present after tracheotomy and were believed to be complications of the procedure. The first case was in a 2-year-old child upon whom tracheotomy had been performed 24 hours following the removal of a foreign body from the lung. The procedure was an intermediate one, the second and third tracheal rings being incised. A vegetal tracheobronchitis was present. Four days after tracheotomy an x-ray of the chest was obtained, disclosing a partial pneumothorax on the left side. In the interval, the clinical progress had been satisfactory and continued to be so. The second case was in a 3-year-old child. An intermediate tracheotomy was performed to relieve respiratory difficulty secondary to papillomata of the larynx. In this case, a large thymus gland caused difficulty in exposure of the trachea and a portion was removed. X-ray of the chest four days later again disclosed mediastinal emphysema and pneumothorax on the left side. During this interval and subsequently, the clinical course was uneventful. The third case was the patient mentioned previously with the retropharyngeal abscess. Pneumothorax in this case was diagnosed by physical examination and paracentesis. This last patient expired, the pneumothorax no doubt playing a part. A fourth case of pneumothorax, and in this instance a tension pneumothorax, developed after tracheotomy in an elderly patient suffering with an extensive carcinoma of the larynx. However, as this patient had a number of pleural adhesions, it is not believed that he should be placed in the group mentioned above.

Michels[7] says that pneumothorax and emphysema may be established by several pathways, namely, direct injury to the pleural dome during tracheotomy, direct rupture of the parenchyma and pleura of the lung, the extrapleural route with dissection of air along the vessels to the hilus, and finally the dissection of air by way of the pretracheal fascia to the mediastinum. In my opinion, the factor responsible in our group was the last mentioned. As the pretracheal fascia is dissected free from the trachea, this opens an avenue into the mediastinum, and air on forceful respiration is drawn into the

mediastinum. As the volume of air increases, there occurs in some cases a rupture of the mediastinal pleura with resulting pneumothorax. Iglauer[8] quotes Champney's experimental work in support of this observation. The inrush of air into the mediastinum is often audible. Macklin,[9] in his animal experiments, shows that if air in the mediastinum is of sufficient volume, the wall will rupture, discharging the air into the pleural space.

Schlaepfer[10] reports that hemorrhage occurring days or weeks after tracheotomy is a rare complication. In this series 2 such cases occurred. The first, a 2-year-old child upon whom tracheotomy had been performed because of laryngeal diphtheria, died from hemorrhage on the ninth postoperative day. An orderly tracheotomy had been performed while an intubation tube was in place, utilizing the third and fourth rings. Slight infection occurred in the surrounding tissue, but had cleared up, and the child was doing nicely. A slight hemorrhage occurred from the tracheal fistula, ceasing spontaneously, and was followed in three hours by a massive hemorrhage, which the patient did not survive.

The second case, a very interesting one, was a child seven weeks of age upon whom a diagnosis of congenital laryngeal stridor was made. The respiratory difficulty was constant with severe intermittent attacks. The unfavorable progress of the patient made tracheotomy a necessity, this being done with a 3.5 mm. bronchoscope in place. A subsequent stormy course, requiring the administration of sulfanilamide or a complicating tracheobronchitis, repeated bronchoscopies, and the insertion of a larger tracheal cannula, finally resulted in a favorable prognosis with the patient breathing freely, afebrile, and gaining weight. On the twenty-third postoperative day, hemorrhage occurred from the tracheal fistula, and the child expired before anything could be done. Autopsy was not granted in either case, so without definite evidence and depending upon Schlaefper's observations, it is believed that hemorrhage in the first case was due either to premature separation of the diphtheritic membrane or pressure erosion of the tracheal wall. In the second case, it seems highly probable, in view of the fact that the oversize tube was used, that erosion of the tracheal wall occurred. In either case, an injury to a large vessel, according to Schlaepfer more commonly the innominate artery, may have been ultimately responsible.

Two cases died of bronchopneumonia which were classified as being secondary to elective tracheotomy, as no pre-existing pathology of the tracheobronchial tree or lung was present. The figure is open to question, as a number of the cases had, as a terminal factor, bronchopneumonia; however, this condition is so commonly a complication of the primary pathologic which requires tracheotomy, especially in children, that it is practically impossible to determine just what influence tracheotomy had upon the development of the bronchopneumonia.

In one case, a small granuloma developed within the trachea, following the removal of the cannula. An opportunity to observe this occurred in a patient who had tracheotomy in order to facilitate an operation upon the larynx for carcinoma and later required total laryngectomy. Subcutaneous emphysema of the tissues of the neck was a common finding, but of no significance. An infection of the tissues of the neck occurred in one case.

No case of mediastinitis or laryngeal stenosis developed secondary to the operative procedure in this series of cases. Deaths from respiratory failure after successful tracheotomy, the cause of which has been ascribed to acapnia by Negus[11] and others, did not occur.

As mentioned previously, two deaths occurred directly secondary to the tracheotomy, but the fault was not that of the procedure, but of the judgment and technic of those concerned in carrying out the procedure.

SUMMARY

A survey of the records of 100 patients requiring tracheotomy is presented. Emphasis is placed upon the complication of pneumothorax, which occurs more commonly than one would believe. Two cases of secondary hemorrhage in this group represent no doubt a higher percentage than is usually encountered. No accurate data could be obtained in regard to bronchopneumonia because of the pre-existing pathologic condition in the trachea, bronchi, and lungs in a large number of the cases. Except in 6 cases, the primary pathologic condition, which included a wide variety of conditions, was be-

lieved to be responsible for the 49 deaths. The conditions requiring tracheotomy, especially in children, except in the elective group, compels one to make a guarded prognosis even though the operation is life-saving at the time.

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DISCUSSION (*Abstract*)

Dr. Murdock Equen, Atlanta, Ga.—Aside from the relief of air hunger, I think the next most important indication for the insertion of a tracheotomy tube is a central lung suppuration which has ruptured into a bronchus. Far less energy is expended by a patient in coughing up lung secretions through a tracheotomy tube than would be required to force the secretions into the mouth. Sometimes, by the way, the simple passage of a bronchoscope may cause a lung abscess to rupture into a bronchus.

In cases of pulmonary suppuration a tracheotomy tube permits the frequent insertion of a small rubber catheter. By this means, secretions may be aspirated at frequent intervals without appreciable trauma, thus keeping the lungs relatively dry. We prefer this method of removal of secretions to the frequent passage of a bronchoscope, either through the natural channels or through the tracheotomy, as it causes less shock and discomfort to the patient. I believe the less intratracheal manipulation with a rigid metal tube the better.

It is my opinion that in the future tracheotomies will be performed for lung abscesses of spontaneous bacterial origin as frequently as they are now done for lung abscesses of foreign body origin.

The value of placing recently tracheotomized children in a room thoroughly saturated with warm moisture cannot be too highly stressed. At the Ponce de Leon Eye and Ear Infirmary there is a special room for this purpose, the walls of which have been previously protected by two coats of aluminum paint covered by a washable paint. The room is so saturated with warm moisture that steam condenses on the walls and ceiling. The drying of secretions with accompanying scab formation in the tracheobronchial tree is greatly diminished by the presence of the excessive moisture within the patient's room.

THE ETIOLOGY OF GANGRENE ASSOCIATED WITH DEEP NECK INFECTIONS*

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The diagnosis of deep-seated neck infections presents problems involving: (1) the focal points from which the infection has originated, (2) the anatomical arrangement of muscles, fascia and bone in the involved area, (3) the local and constitutional reactions resulting from the infection, and (4) the type and cultural characteristics of the infecting organism. The focal points from which deep neck infections have their origin are: (1) the dental areas, (2) pharynx, (3) sinuses and ears. Infections from the dental areas are mixed varieties and are inclined to present anaerobic characteristics. Those extending from the pharynx are the hemolytic streptococcus, as a rule. Whenever the sinuses or ears are found to be the source of infection, it may be either staphylococcic, pneumococcic, streptococcic or a combination of any of these.

The several anatomical spaces of the neck each has its own peculiar sign post for directing the examiner's attention. The spaces to be considered include: (1) the lateral pharyngeal space; (2) the submaxillary space; (3) the parotid space; (4) the retropharyngeal space; (5) the visceral space; and (6) the space enclosed by the carotid sheath.

Active infection in each of the above spaces, as elsewhere in the body, manifests itself by swelling, redness and pain. The pain is either localized to the involved part or referred to other areas, depending upon the arrangement of the nerve supply. For instance, an abscess in the lateral pharyngeal space may produce referred pain in the ear. It has been pointed out, however, by Mosher that infections involving the carotid sheath may produce no local symptoms and must be identified only by symptoms of general sepsis due to pylephlebitis of the internal jugular vein associated with a history of a primary infection in some neighboring structures. The degree of local and constitutional reactions of these infections, when properly evaluated, not only disclosed their location and severity, but also established differential points in diagnosis

*Read in Section on Ophthalmology and Otolaryngology, Southern Medical Association, Thirty-Fourth Annual Meeting, Louisville, Kentucky, November 12-15, 1940.

that are valuable guides in prognosis and treatment. For example, a large swelling due to a lateral pharyngeal abscess displaces the tonsil inward and forward, and is not difficult to diagnose, whereas a small swelling of an abscess in that locality does not disclose itself to the same degree and may be very difficult to diagnose. The constitutional reaction in all deep neck infections must always be watched for signs of general sepsis.

The diagnosis and treatment of deep neck infections, as a rule, have not been greatly influenced by the type and cultural characteristics of the infecting organisms. In recent years, however, Meleney has described necrotizing infections produced by micro-aerophilic hemolytic streptococci, that is, a type of hemolytic streptococcus that thrives most luxuriantly under reduced oxygen tension which, obviously, would have some bearing upon the methods of treatment of this type of infection anywhere in the body. He observed best results by the use of oxidizing agents while other drugs showed little or no value. The mechanism of infection was later substantiated, experimentally, by the same investigator. Reference can be made to his papers for a thorough description of the clinical condition and the biological properties of the organism. This pathologic entity has since been observed by several authors, including Bate,[1] Bettman,[2] Brewer,[3] Fallow[4] and Maniger.[5]

The following case of deep-seated neck infection is reported as probably belonging to this category, although the necessary substantiating laboratory work was not performed, due to failure to recognize the true nature of the condition during the course of the disease:

A man, 24 years of age, on May 2, 1940, had a third lower molar of the right side extracted. This was followed by moderate reaction of the right lower jaw, which subsided after one week's duration. On May 8, six days following the extraction, a swelling began in the left side of the face and spread rapidly to such an extent that within two days a massive swelling extended from the hair line in the left temple to the infraclavicular space and out to the point of the shoulders of the same side. The swelling was very tight and crepitation existed over a large part of the area. He entered St. Joseph's Hospital on May 10 and the following data were obtained from examination. X-ray pictures showed distribution of gas in the soft tissues of the left side of the neck from the level of the ear to the clavicle. Temperature was 104° F.; blood pressure 142/86, there was a slight trace of albumin, red cells were 4,000,000, hemoglobin was 82 per cent, leukocyte count 20,650, neutrophils 72, stabs 8, Schilling's index 9.2. His general condition was described as critical. Confronted with this clinical picture, the clinicians felt justified in making a diagnosis of gas gangrene of the neck and in initiating the treatment indicated according to the urgency of the symptoms. The consulting roentgenologist, internist and surgeon were, respectively, Drs. C. H. Heacock, Samuel Blackwell and I. S. Coe.

The treatment instituted was as follows: the entire area was treated with x-ray on three successive days with a total of 469 r. Gas gangrene antitoxin and sulfanilamide were given in standard quantities. The patient's condition grew worse and on May 12 symptoms indicating involvement of the throat had developed and I saw him on that date. On examination, in addition to the aspects already described, I found a large fluctuant swelling involving the peri and retro tonsillar area of the left side, which I opened with a wide incision and evacuated a large amount of foul smelling, grayish-appearing pus. The general surgeon on the case at the same sitting made a long incision externally extending from the angle of the jaw to the supraclavicular area, from which he evacuated a large amount of pus similar to that in the tonsillar area. In the next four days, additional incisions were made more laterally in the neck and out near the tip of the shoulder from all of which large amounts of pus and necrotic fibrous tissue were evacuated. It was apparent that there was a marked necrosis and sloughing involving only the fibrous tissue. There was free communication of the space around the tonsil through the pharyngeal wall with the outside so that when he drank water it ran out on the side of the neck. The necrosis of the fibrous tissue extended into the lateral pharyngeal space and beneath the anterior muscles of the neck. No effort was made to identify the carotid sheath, but a number of pockets were verified which extended even deeper than the position of the carotid sheath.

In contrast with the necrosis of the fibrous tissue, there was no necrosis of the muscle tissue. Each muscle stood out separately in relief and there was no sloughing of the muscle tissue. That the muscle tissue remained intact is attested by the fact that after his recovery there was experienced no weakness or limitation of motion in any of the neck muscles as would have been expected if muscle tissue had been destroyed and subsequently replaced by fibrous tissue.

The treatment will not be discussed except as it has a bearing upon the etiologic factors of the disease. From this standpoint, it is to be pointed out that the patient's condition, both local and general, grew steadily worse until surgical drainage was instituted. After that was accomplished and the placement of rubber tubing followed by dakinization, dressing with dichloramine-T and irrigations with mercurochrome, there was scant improvement from day to day, as indicated by the following notes by the attending surgeon. On May 13 additional areas were drained and it was noted: "The patient looks brighter." May 14, it was noted that the condition was satisfactory. May 15, the general condition was improved. May 16, there was further debridement of the involved tissues. May 17, it was noticed that there was direct communication of the external wound and air passages. May 18, a consultant noted on the chart that another transfusion might help him. May 19-20, the condition remained about the same. May 21, the wound was irrigated with peroxide of hydrogen. May 22, peroxide irrigation was repeated and a note made that the condition was improved. The peroxide irrigations were continued daily and there was rapid healing and recovery until on May 26 the patient was well enough to be discharged from the hospital. In the

meantime, repeated laboratory tests had been made from specimens taken from the wound at the time of surgical drainage and subsequently and the findings were a preponderance of proteus bacilli, many staphylococci and a few streptococci. Repeated smears and cultures were made for the Welch bacillus, but none was found.

In agreement with these clinical notes, the temperature chart showing a sustained elevation of the temperature up to May 21, the day on which the use of peroxide irrigation was initiated, reveals a sharp and permanent decline of the temperature from that date. After this case had recovered, it was apparent, from a review of all the factors that presented at the time of the surgical drainage and subsequently, namely: the large amount of pus, the massive destruction of subcutaneous fibrous tissue, the non-involvement of the muscle tissue, the failure of the disease to respond to treatment which, as a rule, controls the Welch bacillus infection, the failure to find Welch bacilli on smears and in repeated cultures, and the apparent response of the disease to the irrigations with hydrogen peroxide, that there could not be agreement with the original diagnosis of gangrene caused by the Welch bacillus.

In contradistinction to the above named characteristics, Welch bacillus infections are characterized by the following: (1) absence of pus formation; (2) destruction of muscle tissue but not connective tissue; (3) response to gas bacillus antitoxin, x-ray and sulfanilamide and presence of Welch bacilli, both on direct smear and on culture; and (5) Welch bacillus infection would not respond to the use of peroxide to the same degree that this case seemed to do. Neither is the clinical picture in harmony with that which is to be expected in spirochetal gangrene. There was no point of entry associated with a direct line of travel which is necessary to explain a spirochetal infection. The rapid development and marked constitutional reaction of the case were not in keeping with the slow development and mild constitutional reaction usually observed in spirochetal infections. The absence of the fusiform bacilli and the spirochete of Vincent on repeated examinations definitely excludes the diagnosis of spirochetal infections.

Other clinical types of gangrene include staphylococcal necrotoxin gangrene and the vascular types of gangrene, none of which present characteristics resembling in any of their aspects the clinical picture presented by the case we have reported. The presence of gas in the tissue can be explained on the basis of the presence of the proteus bacillus since it is a recognized fact that this organism will produce gas in tissue.

With the possible exception of the presence of gas in the tissue, this case resembles the pathologic entity described by Meleney[6] as due to micro-aerophilic hemolytic streptococcus.

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DISCUSSION (*Abstract*)

Dr. Wm. R. McKenzie, Baltimore, Md.—There are several points which I wish to emphasize about this case: first, the necessity of thorough examination of the patient, beginning with the history, to determine the point of origin, a complete physical examination, and complete laboratory studies, including x-ray. These examinations should not be done once only, but should be frequently repeated so that we will not miss the advent of complications, which are almost always of a serious nature and require early diagnosis and treatment. It may be too late to save the life of the patient when the complication has become moderately advanced or self-evident.

Our attention has been called to the fact that there are several points of origin of these infections, each of which is usually associated with a bacterial flora peculiar to that focal point. Since the advent of chemotherapy and the known specific action of the various drugs in the sulfanilamide group, we can all see the necessity of complete and repeated bacteriologic and blood examinations. The presence of streptococci, staphylococci, pneumococci or Welch bacilli or Vincent's spirochetes indicates the employment of drugs, serums, antitoxins or x-ray for their specific treatment. X-ray studies are of no less importance than blood and bacteriologic studies and should be done in every case. Many times a single picture is not enough for accurate diagnostic purposes. Therefore, pictures should be made at various angles, antero-posterior, lateral, oblique and repeated until the desired information is obtained. Many things of diagnostic value can be learned from well made roentgenograms. For instance, in the case under discussion, the presence of gas bubbles in the tissue was demonstrated. Accumulations of pus may be detected because of enlargement of the anatomical spaces or by deviations in the normal position or contour of various

structures in the neck. They will undoubtedly serve as a valuable guide in the location of our incision in the search for pus.

Intimate knowledge of the various anatomical spaces in the neck is essential for intelligent treatment. Knowing where to incise is as important as knowing when. Infection in these spaces spreads in three ways: by way of the blood stream, the lymphatic channels and by extension along fascial planes. The complications, suffocation, mediastinitis and septicemia are the result of extension by one or more of these pathways.

Suffocation may be caused by edema of the glottis or tongue, by the pressure of pocketed pus on the trachea, or by rupture into the airways of a large accumulation of pus. Mediastinitis is due to the extension of infection downward along fascial planes. As these planes extend downward from the base of the skull, this extension is along the lines of least resistance. Septicemia, which Dr. Blassingame has warned us to be ever watchful for, is probably the most frequent complication of infections originating about the face, head and neck. Early and adequate incision and drainage are indicated in all of these cases. It is our best defense against the spread of infection and the development of complications. In many of these cases, those involving the sublingual, submaxillary, retro-pharyngeal or lateral-pharyngeal spaces, incision through the mucous membrane in the floor of the mouth, in the posterior or lateral-pharyngeal walls is all that is necessary. If the infection has spread to involve other spaces, then external incision or a combination of internal and external incisions will be necessary. These incisions should be wide enough for proper exposure and adequate drainage. Stab wounds and small incisions are mentioned only to be condemned.

While it is unquestionably true that sulfanilamide and its derivatives will greatly modify the severity and lessen the mortality of some of these infections, we must not overlook nor fail to use general supportive measures in our treatment of the patient. For this purpose frequently repeated small blood transfusions are most valuable. It has been my experience that 250 c. c. of blood given every day or two is much more beneficial than 500 c. c. or more given at longer intervals. Deep infections in the neck are almost always of a very serious nature. The patient is usually critically, very often fatally ill, therefore, every atom of our diagnostic and surgical ability is necessary to bring about a successful solution of these cases.

Dr. Blassingame (closing).—The tooth was extracted on the right side and the patient had an initial reaction on that side which subsided in six or seven days, but in six days following the extraction of the tooth, the reaction began on the left side and all of the infection was on the left side, although the tooth was on the right side.

As to the type of infection, I am not a bacteriologist, and the bacteriologic phases and implications in this case have all been suggested to me by our local bacteriologist at home, but his interest in it was from the standpoint of the question of anaerobic infection. We are overlooking the nature of infections of this type, in which bacteriologic examination is the important thing.

CLINICAL AND STATISTICAL EVALUATION OF HISTAMINASE*

By EVERETT C. FOX, M.D.
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Incriminating evidence points to histamine as the trigger mechanism which prepares the skin for various anaphylactic or allergic reactions.[1] Best and McHenry[2] found that almost every tissue contains a histamine-inactivating substance for which they proposed the name histaminase. Their conclusion was, "There would be no obvious clinical application for histaminase." In a recent note to the Editor of the *Journal of the American Medical Association*, Best and McHenry[3] point out that neither in their original report nor in any subsequent publication by them has it been suggested that the administration of histaminase might be a useful mode of therapy. They indicated that they have been unable to confirm the results of Karady and Brown[4] in the protection of guinea pigs against anaphylactic and histamine shock with histaminase.

Since 1939, there have been numerous reports in the literature of the use of histaminase in a variety of allergic processes. Relatively few have been contributed by American dermatologists.[5 6 7] Since there have been diverse reports of results in many dermatoses, including acne, some of which were from physicians not trained in cutaneous medicine, it was decided to survey the opinion of American dermatologists. On July 20, 1940, questionnaires were mailed to one hundred Fellows of the American Academy of Dermatology asking their results with histaminase. On October 20, 1940, seventy replies had been received and 962 cases were reported; 26 per cent showed improvement and 74 per cent were unimproved (*Table 1*).

Although the great preponderance of cases did not show any improvement, there were a few dermatoses in which histaminase may promise some therapeutic value. The drug has been advocated in acne, but by all reports it would be considered a complete failure, even with 14 showing some temporary improvement of a total of

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*From the Department of Dermatology, Baylor University College of Medicine.

*The histaminase was supplied by K. M. Smoot, of the Department of Medical Research of the Winthrop Chemical Company, Inc.

93. Beinhauer[8] reports 3 cases showing temporary improvement of his series of 29 cases and reported the drug a failure in acne. These observations disagree with some continental reports. Of 382 cases of urticaria, less than one-third showed any degree of improvement. Seven cases of papular urticaria all showed permanent improvement; other reports were less favorable.[9] The best results were obtained in cases of serum sickness, where 17 of 20 cases showed definite improvement. This is further substantiated by the report of Foshay,[10] who reported improvement in 13 of 16 cases in eighteen to thirty-six hours and stated that attempts at prophylaxis seem hopeful.

Eczema, contact dermatitis, atopic dermatitis and neurodermatitis cases showed improvement in only 55 cases of a total of 331. If results are to be expected from histaminase, this group

TABULATION FROM 70 RETURNED QUESTIONNAIRES
DERMATOSES TREATED WITH HISTAMINASE

Diagnosis		No. Cases	Improved		Unimproved	Dosage, Units Daily	Remarks
			Temporary	Permanent			
Acne		93	14	0	79	40-120	
Rosacea		3	2	0	1	60-120	Nausea
Urticaria		382	64	43	275	60-120	Nausea
Lichen urticatus	x	7		7		40-80	
Angioneurotic edema	x	31	9	6	16	40-120	
Eczema		49	3	4	42	40-120	
Contact dermatitis		19	2	4	13	40-120	
Atopic dermatitis		163	22	12	129	40-120	Nausea
Neurodermatitis		100	5	3	92	40-120	
Physical allergy							
(a) Heat	x	9	3	3	3	40-120	
(b) Cold		9	0	1	8	40-120	
(c) Light	x	13	4	0	9	40-120	
Lupus erythematosus		2	1	0	1	60-120	
Hypersensitivity							
(a) Drugs	x	2	2			60-120	
Arsphenamine	x	2		1	1	60-120	
(b) Foods		6	2	1	3	60-120	
(c) Serum sickness	x	20	3	14	3	60-120	Nausea
Erythema multiforme		29	6	1	22	40-80	
Pruritus ani		12	2	0	10	40-80	
Ide eruptions		7	3	1	3	60-120	Nausea
Purpura		1	1			40-80	
Senile pruritus		2	0	0	2	40-80	
Psoriasis		1	0	0	1	60	
Total cases		962	148	101	713		
Percentage		100	15.39	10.49	74.12		

Table 1

of dermatoses should show a much higher percentage of improvement.

In physical allergy better results were obtained especially in cases of sensitivity to heat and sunlight. One of my cases was as sensitive to sun three days after receiving 120 units daily for two weeks as previously. However, one case of lupus erythematosus showed continued improvement following an exacerbation by a recent sun exposure.

Two patients were able to tolerate drugs while taking histaminase which previously always provoked a purpuric, papular or urticarial dermatitis.[11]

There is some indication that some of the milder arsphenamine reactions may be modified by histaminase. Likewise, foods were ingested without reaction during the administration of histaminase. Lehmann[12] reports relief of severe migraine headaches by administration of histaminase a few hours before eating onions. Some promise is noted in the group of "ide" eruptions where four of seven cases were improved. In one of these large vesicular patches over legs, thighs and hands showed marked improvement in five days. In a miscellaneous group consisting of erythema multiforme, pruritus ani, purpura, senile pruritus and psoriasis improvement was noted in 10 of 45 cases. There were very few toxic reactions reported in the entire series, but nausea and other mild gastro-intestinal symptoms were noted at times.

A survey of 962 cases reported by seventy American dermatologists indicates that the oral administration of histaminase is not so effective in a group of dermatoses for which the drug has been recommended as previous reports would indicate.

If we then consider the difficulties which one encounters in accurately evaluating a drug of this type, used in the therapy of such dermatoses as urticaria, serum sickness, physical allergy, hypersensitivity to drugs, food and infections, which are often of evanescent character and frequently undergo spontaneous involution, the results actually may be considerably less definite than is at first apparent. The therapeutic results obtained with this drug at present are at least not remarkable. However, there are some hopeful indications that it may be a useful aid in the management of such conditions as serum sickness, angioneurotic edema, sensitivity to foods and drugs, and physical allergy.

CONCLUSIONS

(1) A survey of seventy American dermatologists who reported 962 cases of a variety of dematoses treated with histaminase revealed that 15.39 per cent showed temporary improvement and 10.49 per cent had permanent improvement, while 74.12 per cent were unimproved.

(2) The general impression conveyed is that the drug histaminase is not so useful in dermatologic therapy as has been previously suggested.

(3) There are a few dermatoses in which this drug may be helpful.

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DISCUSSION (*Abstract*)

Dr. Herbert S. Alden, Atlanta, Ga.—I am glad to find that Dr. Fox is lukewarm in his attitude toward histaminase, which is exactly my attitude.

Hope of the efficacy of histaminase in allergic phenomena is based upon the fact that histamine is the cause of the difficulty and that it is an excess of histamine in the shocked tissue that produces the effect. However, from what I can read and hear about it, there is no clinical or experimental data definitely to support this belief.

Sir Thomas Lewis who invented the term "H substance," did not believe that it was histamine. He just called it "H substance," and the term was picked up and called histamine by other authors.

After all, the subject of the use of histaminase, I think, boils down to a couple of "ifs." First, if you think your allergic condition, your urticaria, or whatever you have, is caused by the liberation of histamine in the shocked tissues, and assuming that, if you think

that you can give enough histaminase, and you note the large doses Dr. Fox mentioned, completely to destroy the histamine in the shocked tissue and do that irrespective of the other mechanisms in the body which will destroy histamine, then, I think you can with perfect intellectual honesty go right ahead and give your histaminase in the hope that you will get some help from it. Personally, I do not think these two things are true.

Recently there has been a report of the Council on Pharmacy and Chemistry of the American Medical Association on histaminase, which certainly gives a very complete evaluation of it. Let me quote just one sentence from that. Here is the quotation: "The use of histaminase in the treatment of allergic states, although perhaps ingenious and suggestive, has no real established scientific clinical basis."

In summary, and this is not a reference to Dr. Fox's paper at all, I should like to say that the whole subject of histaminase, is much like Macbeth's depressed summation of life: "Full of sound and fury, signifying nothing."

Dr. M. T. Van Studdiford, New Orleans, La.—Dr. Eustis of New Orleans, some years ago, used what we now know as histaminase in the treatment of asthma. Today, with the H substance spoken of as a cause of skin disorders, we find histaminase offered as a cure or relief agent in these kindred conditions. To my delight, four out of five of my patients with urticarias and rosacea, who were taking 120 units of histaminase daily, showed a marked improvement. Of course, I consider the therapy substitutional because two of the patients had a recurrence after stopping treatment but were cleared up when treatment was reinstituted. What the maintenance dose should be is still to be determined.

My patients reported an increased appetite and sense of well-being while taking the tablets.

Dr. Fox (closing).—Apparently allergists and others who have studied these phenomena have pretty well agreed that histamine itself is the trigger mechanism for the development of allergy, and that, of course, did develop from the triple response phenomenon which was described originally by Lewis.

Whether histaminase is the material, ,which is the enzyme that inactivates histamine, is still a moot question. Hardy and Brown reported protection of guinea pigs, which Best and McHenry have been unable to repeat. I think the question is not yet ended as far as histaminase is concerned. It is not useful to any great degree in a large variety of conditions for which it has been recommended, but with studies we are finding certain instances in which it is tremendously valuable, particularly serum sickness. Seventeen of twenty cases in our series and thirteen of sixteen in Foshay's series were definitely benefited. So if it is effective in no other condition, it is worth while to use it just in that disturbance.

I have not yet had an opportunity to use the material intramuscularly. Yesterday Dr. J. H. Black, an allergist, told me that he had seen bettger results from the intramuscular administration of large doses than from oral administration. This report does not include the intramuscular use of the drug.

THE PRACTICE OF INDUSTRIAL HEALTH*

By T. Lyle Hazlett, M.D.
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No application of medicine has shown such rapid growth and development in the past twenty-five years as that which has become a part of our complex industrial life. Its advances have kept abreast of the gradual transition of our industrial pattern from small companies with few employes to our present day vast industrial organizations of many employes and complex management.

This transition was accompanied by the development of the so-called welfare activities, either from an economic or humanitarian standpoint. And in this general picture there appeared the large contributions of the physicians either on a part-time or a full-time basis.

At the beginning of this twenty-five-year period, emphasis was placed almost entirely on the surgical care of injured employes. But gradually there has been a trend to the field of preventive medicine, until now the practice of industrial health is definitely becoming a specialized field in the prevention of both sickness and accidents among our industrial groups.

Intensive accident prevention work has been a notable achievement in our industrial life, largely without the active participation of physicians, since the interest and training of our medical school curricula emphasized curative rather than preventive medicine. Consequently, we have today a challenge to provide additional training in present day industrial health practices to the undergraduate of our medical schools, to all physicians who may have industrial contacts, and especially to those who may be engaged by industrial organizations to assume responsibility for health conservation among their workers.

When it is remembered that less than 25 per cent of an individual's time is spent at his industrial occupation, we have both an intra-industrial and an extra-industrial interest in any program for the conservation of health among our industrial population. Hence, the practice of industrial health may well be divided into these two distinct divisions.

Frequently home conditions are a contributing

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factor to the cause of accidents, and sickness often is closely associated in the mind of the industrial worker, with environmental working conditions; hence, the wide public health vision that management as well as physicians must possess in the practice of industrial health.

Holy Writ says:

"And why beholdest the moat that is in thy brother's eye, but perceiveth not the beam that is in thine own eye."

And it has always seemed that we should afford our workers safe and healthful working environment before attempting to influence community health, although unquestionably the two go hand in hand.

Our intra-industrial responsibility requires us to provide adequate and complete surgical care for injured workers. The manner and extent of this care depend largely upon the size of the group, the geographical location and the type of industry. These factors also determine the need for personnel and equipment. This applies also to the medical cases which ordinarily are given only first aid medication and then referred to the family physician. The exceptions are those of occupational disease. Here again the geographical location has a very definite bearing on the extent of medical care.

Much has been said and much is being said about pre-employment physical examinations. The statement,

"This examination is made not for the purpose of rejecting applicants, but for the proper placement of those whose defects might be hazardous to themselves or those about them,"

should be posted in all examining rooms, since it is most helpful in bringing the true interpretation of this procedure in industry.

The practice of maintaining simply one standard of physical fitness is a most wasteful loss of our man power, which was perhaps never appreciated before this time of need for its conservation in our national defense program.

A most practical plan for job placement is the classification of fitness according to the requirements of the occupation. Thus, it becomes necessary for the examining physician to know each job and process. This classification may be of four groups.

In group one are those occupations which are without health hazards. The examination for these occupations is that of a life insurance examination plus, perhaps, a Wassermann, fluoroscopic or an x-ray examination but dependent largely upon the physical and mental requirements of the individual job.

Group two occupations are those in which definite health hazards exist, such as the "dusty occupations." The examination is that of group one plus an x-ray for permanent record. In these cases we are particularly interested in ruling out tuberculosis, for we know there seems to be a definite relation between silica exposure and tuberculous infection. The present trend of thought among our working population is that tuberculosis is more and more becoming a disease of occupation.

Group three may include occupations such as lead workers, or mercury. In addition to the type one examination, blood and special urine examinations are required for this group. We do not desire to place a man already carrying an over supply of lead in a lead exposure occupation even if the exposure is controlled within safe limits. Many other special tests may be made on these workers, depending upon the materials handled in the occupation.

Group four examinations could be group one examination plus special tests such as the "patch test" to determine those individuals susceptible to a specific material or process, in relation particularly to contact dermatosis, where it is known materials or processes of the job may cause skin irritations.

From records of the states having occupational disease acts, we find that from 60 to 70 per cent of the claims are for dermatosis. Thus, if we are to prevent these cases, the examinations are a most economical procedure. Protection involving these processes is often difficult, due to the fact that protective hand lotions are not always satisfactory; so we must provide the worker protection either with rubber gloves and special clothing or remove him from this type of work.

The same standards of classification may be used for the periodic physical examinations. The frequency of these examinations will depend upon the type of the work. Thus, the physician must know the materials, the processes and the resultant hazards, if any, of the job. To obtain this information, he must of necessity cooperate with the employment department, safety engineer, and the equipment and process engineer. If the organization is small, he may have to gather this information himself, but much of it can be procured from larger organizations having the same problems and from private and governmental agencies.

In large organizations it is becoming more and

more imperative for the physician to have at his disposal the services of a fully organized industrial hygiene laboratory, staffed by especially trained personnel to make special studies of environmental conditions so that the physician may evaluate their effect upon individual workers and if necessary make definite recommendations to management for correction. It is also the physician's responsibility to determine any health hazards of new processes and materials before they are put into production, thus effecting very often a great saving to management through elimination of changes after production.

As first impressions are often lasting, it is important that management provide suitable physical layouts for medical departments. This is just as important as the personality and training of the medical personnel. The physician should have the utmost privacy for making his examinations, and his attitude should be the same to the applicant and the workers as it would be to one consulting him in his private practice. The new employe especially will carry with him throughout his employment the impression of the company formed during his pre-employment examination. This examination can be a morale-builder for the entire organization.

We are constantly experiencing new problems in air-conditioning and ventilation. It is just as important that we provide pure air for our workers as it is to provide pure water.

The problem of fatigue is still open for much further research. There seems to be a definite relation between fatigue and the availability of food for the workers throughout the working day. And there is unquestionably a definite relation between fatigue and accidents. We see the accident curve go up before the noon lunch period, and then again in the mid-afternoon. Perhaps we should think more about rest periods, but as yet we have not sufficient clinical investigations of many occupations to determine the full value of an interval of rest.

Plant sanitation, bathing facilities for certain occupations, and education in personal hygiene must be a part of the practice of industrial health.

By-products are often the result of medical investigations. A large manufacturing company was experiencing heavy losses due to the non-matching of range parts after assembly. A careful examination of the workers' eyes disclosed a vitamin A deficiency. Upon its correction, errors in non-matching colors were practically eliminated, with a resultant saving in production costs.

A study of all accidents will often reveal information which may be of great assistance to the safety supervisors. Machines slightly out of alignment may be checked and corrected as a result of a number of minor accidents involving the same cause. But such information cannot be made available if systematic records are not kept. Daily dispensary records of both surgical and first aid medical care rendered are most essential, as well as complete medical records of the employes' sicknesses. The latter can be accomplished only by having all employes clear through the medical department following absence from work. One large steel company has found it most worth while to have all employes losing one working shift report to the medical department. Other organizations require them to report after forty-eight hours or longer, but unquestionably the shorter time is preferable. Absenteeism is receiving more and more attention; and it should, since it is the cause of great economic losses.

From the purely intra-industrial phase of industrial health practice we have available health education by means of pamphlets, posters, talks by the medical personnel, and by individual contacts. The plant magazine is of particular value in printing health and safety facts. A health educational program may be set up to provide a specific topic for each month of the year, such as early diagnosis of tuberculosis, cancer, care of the teeth, and so on. No group is more receptive than an industrial group, and in our experience we have yet to find any literature on health subjects in waste receptacles.

From the foregoing intra-industrial activities one can easily discern our interest in extra-industrial health measures. We should aid in the work of establishing proper housing developments, providing safe water supplies, proper sewage disposal, tuberculosis campaigns, and so forth. The children of today are the industrial workers of tomorrow. Any endeavors to prevent disease in the community should be of particular interest to and a part of the practice of industrial health. This work should be undertaken largely through cooperation with the family physicians, local, state and national medical societies, and the city, state and national health organizations.

We as physicians should accept this responsibility to industry, since no other group is well

trained and well fitted for it. If we do not assume this responsibility, we shall not be fulfilling our obligation to the Oath of Hippocrates, and we shall be derelict in carrying out our conception of preventive medicine.

At no time in the history of our country does so much depend upon the conservation of man power in our industrial organizations as at this time in our program of national defense and the protection of our democratic form of government.

DISCUSSION (*Abstract*)

Dr. Harry C. Schmeisser, Memphis, Tenn.—There is no question in the minds of all of us that Dr. Hazlett's paper is quite a timely contribution in view of the present national preparedness. We are all thinking of industrial health just now. It will be a greater problem in the near future, and he has an unusual opportunity in his great industry, Westinghouse, to lead the way.

We at Memphis at the present time are also in a position to make some observations along these lines. A great industry, DuPont, has set up a branch powder manufacturing company at Memphis. It is the company's policy to give a thorough physical examination and to admit employes to their factories only if they are in perfect health.

Now, it happens that Dr. McGinnes, who is a member of the Department of Preventive Medicine at the University of Tennessee, of which I am a faculty member, has been made director of syphilis control in our community, and he has been holding a clinic at this powder factory and has been examining the applicants for admission. He finds that 40 per cent of the Negroes who make application are syphilitic. The tests are controlled by Kahn-trained technicians in DuPont's central laboratory at Wilmington. DuPont is so strict that under its rules 40 per cent would not be accepted. The non-employment of these individuals was carried out for some time until the mayor and the county commissioner came to the conclusion that Memphis would not be profiting very much from this great new industry if 40 per cent of the negro applications were turned down, so they plead with DuPont at Wilmington to reduce their requirements. They now permit some of these 40 per cent to be employed provided they take the rigid, prescribed syphilitic treatment.

My point is this: we have great industries that are handling this industrial health problem very efficiently, and yet it is important that they not set the same standards for all of their branch factories in various parts of the country. If DuPont should insist on its previous standards of not taking any syphilitic individuals, negro employment in Memphis would greatly suffer.

Dr. Hazlett (*closing*).—Another thing that influences very much in industry pre-employment examinations, is the labor market. We are often forced to bring down our standards a certain amount, but if we try to fit the man for an individual job, we can use a great many men whom we have not used in the past.

ATTEMPTS TO TEACH PRINCIPLES OF PSYCHIATRIC INTERVIEWING*

By JOHN C. WHITEHORN, M.D.†
St. Louis, Missouri

In the task of working out the program for the medical students at Washington University in the last two years, the principal aims have been to develop insight into personality functions and problems, as encountered in the general practice of medicine, and to give to all students some opportunity and assistance in acquiring and developing some skill in methods of personality study and treatment. This last aim is concerned principally with the interview as the main method, both for study and treatment of personality problems. I am glad to have the opportunity to discuss with you today some of the attempts which we have been making to teach certain of the more elementary principles of interviewing.

A brief statement of the present outline of our psychiatric program may help to orient this particular problem. We have time allotted for psychiatric instruction in each of the four years. In the first course, there is a brief review of premedical psychology and a series of lectures designed to inform the student about the enormous importance of emotional reactions in medical history and practice. For example, one lecture has dealt with the history of anatomy, as that has been influenced by the emotional reactions to cutting up the human body. Another has dealt with the public health problem of the control of syphilis, particularly as it has been handicapped by prejudice, prudery, guilt feelings, and so on. We found, however, that our medical students were not getting much out of these lectures, so this year we have, so to speak, lowered our aim so as to fire almost point blank into the students' faces. Starting from a consideration of the attitudes which characterize doctors and medical students, some lectures are given concerning the development of attitudes in the growth of personality, with particular emphasis upon the development of emotional security and poise. Then some case material is presented to illustrate the doctor's task of ministering to the distraught patient's need for security.

In the second period of instruction, in the sec-

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ond year of the medical course, attention is focused upon the individual patient and his emotional attitudes about sickness, doctors, hospitals, and so on. Case records are discussed and each student writes a descriptive account of a patient with chronic disease, going in some detail into his emotional reaction and adjustment to chronic illness or frustration, and relating his reactions, so far as the student's knowledge and understanding permit, to the biographical development of the patient's personality. The lectures and case discussions at this stage are concerned largely with the material, the kinds of facts that are considered most significant in personality functioning; but this preoccupation with material leads directly to the discussion of how the doctor finds out about such matters from patients and other informants.

During the third year, students serve neuropsychiatric clinical clerkships for one month. Some of their cases are in the psychiatric service (the Bliss Psychopathic Institute of the St. Louis City Hospital); other cases are in the general hospital. A feature of third year work which we consider very important is the guidance in interviewing. In one exercise, small groups of students sit in with Dr. Satterfield during his interview with a patient in the clinic and discuss immediately before and after the interview the aims and methods of eliciting information and reactions, and the meanings of this material as it bears on personality functioning. The value of this exercise depends largely upon a special talent which Dr. Satterfield has for conducting good therapeutic interviews, under those admittedly difficult circumstances.

Dr. Felix Deutsch has been using telediphone records of interviews for teaching purposes with our third and fourth year students. This permits a more normal and significant interview, with only patient and doctor in the room. The conversation can then be reproduced for groups of students in a manner very useful for teaching purposes. Typescripts are made available to make still plainer the playing back of the recorded interview. Interruptions can be made at any point. The small group of students can thus discuss at any point with the doctor why such or such a question was asked, or, perhaps more importantly, why it was not asked. The technic and progress of the recorded interview can be repeatedly examined and discussed to make clear those points which are likely to be missed by the untrained, such as the advantages of waiting at particular times; the careful adherence to the language used by the patient; the principles of association, and so on.

In the fourth year, electives are offered for clinical work with out-patients as well as in-patients.

This training program is, of course, accompanied by other teaching exercises: lectures, clinical demonstrations, ward rounds, case discussions, student case-presentations, student reports on special reading, and so on.

This constitutes in brief outline the plan of undergraduate instruction in psychiatry. As you see, the aim is to present psychiatry as a basic science and art in medical practice, not as the specialty which deals only with the insane. We consider the interview to be the principal special tool of this basic art and science, and we are therefore chiefly concerned to help the beginner get well started in the first steps of interviewing.

In considering how to present to you here a brief exposition of what we try to tell the students about the aims and methods of interviewing, it has seemed appropriate to quote in some detail from a kind of guide which I have prepared. This document, called "A Guide to Interviewing and Clinical Personality Study," is mimeographed so that each student has a copy of it, together with the usual outlines for history and mental status.

I shall have to limit myself today to partial quotation from that portion which deals most directly with the interview.

"In the regular work of a psychiatric service one of the chief medical tasks is a careful scrutiny of the patient's personality as it is functioning at the time of examination: a cross-section view, so to speak, usually called the 'mental status.' There is a certain resemblance to the taking of a medical history. One often asks questions and sometimes gets answers. But there is also, in a well conducted mental status examination, a much more important resemblance to a physical examination, as if to say that one verbally percusses the patient, and observes all of the characteristics of his response, tone of voice, expression of face, indications of resentment, embarrassment or relief, tendency to shift the discussion, not just the substance of the replies. This is what is meant by a scrutiny of the patient's personality in action. To do this well, is somewhat more difficult than a physical examination, largely on account of two considerations: first, the factual information sought is somewhat more subtle than what one seeks through inspection, palpation, percussion or auscultation; and second, the technic involves the 'personal equation' to a much more important degree. Indeed, one may truly say that the personal interaction between examiner and examinee constitutes the most vital part of this examination. The examiner has to be doing two things. He participates in the interview and he observes at the same time. For purposes of logical discussion one

may separate these two roles, even though in actuality they have to be combined.

"As an observer, the examiner wishes to gain from his interview with the patient an experience which can be recorded and which will enable him to arrive at some reasonably well founded characterization of the patient, under six headings:

"1. General attitude, appearance and behavior.

"2. Stream of speech.
Not just what he says, but his manner of formulating and communicating his thoughts.

"3. Emotional reactions and mood.
Not only what the patient says about how he feels, but physiologic expressions of emotion and behevioral evidences of mood.

"4. Content of thought and personality trends.
Not everything the patient thinks, but particularly those ideas with which he seems preoccupied, especially such as are stubbornly held against the general opinion of his social group and his leaders.

"5. Orientation, mental grasp and capacity.

"6. Insight and judgment.

"The six headings of this 'mental status' outline are not perhaps the most logical or significant which could be devised; they represent, however, the almost universal American psychiatric practice. There is, unfortunately, a strong set of influences which impel the doctor toward a routine questionnaire performance in this task, but mere questioning, in an impersonal and completely unresponsive manner, tends to defeat its own purpose of getting significant information, because patients do not talk revealingly to an interviewer who does not show signs of interest and of increasing understanding, that is, unless what the patient says seems to mean something to the interviewer. Some response is needed to draw the patient out. In other words, the good interview is a sample situation or test situation for the observation of the patient's interpersonal reactions. Some physicians refrain from making comments or showing any reaction lest the patient pick up suggestions in this way. This is a vain hope. The patient cannot be completely shielded from suggestions, anyway. It is well of course to watch one's tongue and emotional behavior so as not to give harmful suggestions or premature opinions, and it is necessary to keep alert to what it is that one may be suggesting to the patient, but in the end one learns more about a patient by noticing which suggestions he picks up than by offering none.

"Furthermore, every interview has its psychotherapeutic or psychonoxious implications. It is incorrect to think that one can first gather the information and then start the psychotherapy. The psychotherapy begins at the very first contact. One primary purpose of the interview is to establish a psychotherapeutic relationship. This does not mean that the interviewer has to start at once offering advice and opinion—far from it. The first psychotherapeutic step is the doctor's management of his own attitude. It is well to show an attitude of alert and sympathetic consideration. If the doctor feels hostile, or contemptuous or aloof, there is not merely some difficulty in getting information, but also a positive barrier to future psychotherapy.

"THE PRESENTING PROBLEM

"With relatively few exceptions, interviews will begin with the presenting problem, corresponding to the classical medical term, 'chief complaint.' The patient is likely to start there spontaneously, but that is not the only reason for doing so. The presenting problem is likely to be the topic which provides the soundest basis for a conversation of mutual serious interest. Some patients, particularly psychotic patients who are disoriented or have schizophrenic trends, may not talk about the presenting problem. With experience one learns how to shape any conversation into a personality study. Interviews developed around apparently trivial and remote topics can be made significant and gratifying both to patient and doctor in terms of fundamental personal issues. But in general one does start with the presenting problem. Why did the patient come to the hospital, clinic or doctor? What circumstances led to his coming at just this time? Had everything been going well right up to this time?

"Some patients may say, 'Doctor, you saw my record,' or 'You saw my sister,' or 'Do I have to go over all that again?' It may help, then, to say, 'Yes, but we want most of all to know your story of the matter,' or 'We need to understand how the situation has been affecting you, your life, your feelings, your activities, and your welfare.' The main idea is to get the patient's own formulation of the presenting problem. This will tell one a good deal about the patient himself, as well as about his sickness. The interview should also bring out what, if anything, the patient expects the doctor or the hospital can do about this presenting problem, and what kind of help he is prepared to receive. Patients are seldom aware of all the resources of the medical profession, and some may need to be prepared gradually to accept the kind of help that can be given. So it is necessary to get some idea of what the patient expects and is ready for.

"KEEPING THE INTERVIEW IN MOTION

"One should avoid getting into unprofitable arguments. Some patients, especially those with a chronic, obscure disease or a neurosis, may put an uncomplimentary interpretation upon any evidence of interest in their personal reactions, saying, 'So you think I'm abnormal, do you?' or 'Do you think I am only imagining these things? Such remarks may at times be turned to advantage by asking in turn, 'What suggested that to you?' Whereupon the patient may tell of relatives, friends or physicians who have 'accused' him of being neurotic. The doctor's quizzical eyebrow or his repetition in a questioning tone of the word 'accused' may then elicit quite a rush of self-defensive remarks about the interpersonal tensions within the household.

"Some patients may stick on the issue that the doctor thinks they are abnormal. If it is not possible to get around this point unobtrusively, one may say something like this: 'I had not thought particularly that you were "abnormal" or "imagining things," but just that you are human, and as a doctor I am, of course, concerned about how your human interests and successes and frustrations affect your illness and your health. It is a necessary part of our business to learn about such matters.'

"'IRRELEVANT TALK' AND ITS RELEVANCE FOR PERSONALITY PROBLEMS

"Some patients do not need such careful maneuvering to get them to talking about their sickness and

themselves. Indeed, some doctors who are untrained in using the interview for personality study complain at times of the patient who talks too much, 'handing out just a lot of circumstantial and irrelevant talk.' If one is studying the personality of a patient, there is no such thing as 'irrelevant talk.' The irrelevance is merely a condition of the interviewer's mind. He does not know what to make of it.

"Without getting into deeper meanings at this stage, it may be said that the patient's 'irrelevant talk' has usually two meanings, evasion and self-justification. The interviewer does well, in general, to keep his mouth shut and his mind alert to all evidences from which he can infer the nature of the implied accusation or guilt against which the 'irrelevant talk' or behavior constitutes an evasion or self-justification. He has the opportunity to learn in this way what 'it is all about' by a process somewhat analogous to the surveyor's triangulation, thus: take two statements of the patient and imaginatively construct a statement to which they could be the logical replies. If a considerable number of these construction lines converge toward the same point, the interviewer thus develops tentative ideas as to what the talk is all 'about.' He may even throw out tentative questions or remarks to check his inferences. It is not recommended to grab the patient, so to speak, and make him face this central issue. In whatever the interviewer says he should keep to the same tangential lines which the patient has already laid down, and use so far as possible words which the patient has used.

"The inexperienced may wonder how he can get the definite facts required for a respectable case record while letting the patient ramble. Actually much of the information needed will come out spontaneously and opportunities will also spontaneously arise for asking the necessary factual questions, such as those about ages, names and relationships of parents, siblings, and others. The interviewer will find it distinctly helpful to write down and memorize the familiar names of persons concerned: first names and nicknames, and also the phrases spontaneously used by the patient in regard to the more emotionally weighted features of his situation."

SAMPLE FRAGMENT OF INTERVIEW

As a concrete illustration of the preceding discussion, let us take a fragment from a recorded interview which Dr. Felix Deutsch had with a thyrotoxic woman of 42, who had had a long-standing anxiety neurosis.

This fragment begins on the eleventh page of the typewritten interview:

"*Pt.*—I want to work. I've always worked. From the time I was 18.

"*Dr.*—You were more efficient than your sister?

"*Pt.*—Yes. I have done a lot more studying at night than she has done. You know, I took up different courses. I took a course in English. I always had a nice position.

"*Dr.*—Did she?

"*Pt.*—Yes. She did, too. She made more money than I did, Doctor. She made more money. But at one time I was making about $50 a week. I made more than $50.

"*Dr.*—Only to make more money than your sister?

"*Pt.*—Oh, no, not to do that, Doctor. Just to spend money foolishly, that's why I did that. Because I didn't save a cent. Just spent it. For clothes.

"*Dr.*—That was what your mother wanted?

"*Pt.*—Yes. Mother was very, we were all very extravagant. (Pause)

"*Dr.*—You took care of her in her illness?

"*Pt.*—Oh, yes. You see she had been at St. Mary's [Hospital] for a long time and she wanted to come home. A diabetic, and she could go into those comas, you know. We'd bring her out there and sometimes she'd stay there two or three weeks and then come home for two or three days and she went into a coma and we'd have to bring her back. Well, Christmas, we took her home. My sister and I did. My dad was dead then. She wanted to come and she had a nice Christmas, you know, and New Year. We always did make so much of Christmas we let her have it. Because she was going to die, anyway. The nun told us to leave her out there until she died, you know, because she was going to die, anyway. (Pause)

"*Dr.*—I'm not accusing you, still you behave as though you had some guilt feelings, that you did it against the advice of the physician.

"*Pt.*—I didn't do it against the advice of the physician. I did it against the advice of the nun, because the nun told me she was so sick, you know, with diabetes, she said to leave her there until she died. Pretty easy for the nuns out there to talk. They don't feel that there is a big bill being run up there every week that someone has to pay. Well, my mother paid it herself, you know. (Pause)

"*Dr.*—But mother wanted to be at home with your sister and also with you?

"*Pt.*—No. [Not so much with us, just at home.] My mother was very old-fashioned, Doctor, and she felt that her home was everything. That's how she broke her hip, trying to get up to see what was going on in the kitchen, you know. And I was silly enough to bring her out there. And I set her in a chair and she fell out of the chair. She was just too weak. She just fell out. And if she sat still she would have been all right, but she was fidgeting around, I guess, and she fell out. Her hip was broken and she died five weeks after of pneumonia."

"Here is a woman who is talking defensively about the circumstances of her mother's death. That she is fending off some implied accusation of guilt is suggested in her excessive repetitiousness in saying, 'She was going to die, anyway.' The physician here, having the advantage of seeing the patient, and finding her prepared for such a question, asks directly about her guilt feeling. He gets a somewhat evasive reply. It was not against the doctor's advice, but against the nun's advice. Why does she beat around the bush like this? Her evasiveness has unnecessarily brought in a nun. Presumably there will be a theme connected with this nun. And in the next sentence a money theme comes up. The nuns do not feel the big bill. It looks as if the patient here is dodging the implication that she gained something from her mother's death through the cessation of hospital bills. One does not, of course, address such a question to the patient. But the next sentence could be almost an exact answer. 'Well, my mother paid it

herself, you know'. Almost, but not quite an exact answer, for inheritance would come into consideration, because the patient and her sister stand to get what the mother does not spend on hospital bills.

"The phrase, 'you know,' has a special role in such evasions of a point. 'You know' is an appeal for a nod from the listener, a sign, therefore, that the patient feels a little shaky on this point and by this ruse seeks, unintentionally of course, to trick the listener into full agreement. This patient used a great many 'you knows.' She was a very uneasy patient.

"There was some earlier talk of money, earning $50 per week, which was all spent foolishly, equivalent to saying, 'You see, money doesn't mean anything to me.' One can then construct the accusation against which these several apparently irrelevant comments constitute a defense, namely, the unspoken accusation, 'Maybe I wanted my mother dead so hospital bills would stop and I would get more inheritance money.' Please note that the interviewer does not accuse the patient of this motive. One only notes in his own mind that the patient's meandering remarks seem to skirt tangentially the borders of some such implied guilt feeling.

"In another interview which a different doctor had with this same patient, it came out that there had been, as a matter of fact, a great deal of bickering about the inheritance after the parent's death, another tangential lead to the same theme.

"THE DETECTION OF CONFLICTS AND SOURCES OF ANXIETY

"The interview procedure will, as a rule, uncover leads indicative of some conflict or other in the patient's life. Merely to discover that there is a conflict is not so very important, in itself. Conflicts are not abnormal. Everyone has conflicts. So does everyone have complexes. Some persons may say, 'Do I have an Oedipus complex?' or, 'Doctor, I think I've got an inferiority complex.' One may answer this correctly by saying, 'Of course. But we want to learn how you have dealt with this complex, and how your talents and abilities might enable you to deal with it better.' One wants particularly to find out how the patient deals with the anxiety resulting from unresolved conflicts, because neurotic and psychotic reactions and chronic invalidism owe much of their persistence to the way in which they provide an escape or relief from the anxieties over unresolved conflicts. The interviewer should therefore scrutinize the productions and the behavior of the patient for light on the questions, (1) 'To what anxiety of the patient is the patient's illness a kind of answer?' and (2) 'By what means has the patient, in the past, met this anxiety problem?' Such information is extremely important for therapeutic strategy, because therapeutic efforts can then be intelligently aimed at finding the means whereby the patient can find relief and gratification without resorting to neurotic or psychotic reactions.

"Why doesn't one get this information simply by asking the patient what his anxieties are, and how his illness affects them? One cannot rely upon the patient's direct answer to such questions. Insofar as the patient's neurotic or psychotic forms of adjustment have alleviated his anxiety, to that extent he becomes unaware of it; consequently, the more neurotic or psychotic he is the less he may realize that he has thereby escaped another anxiety. In the second place, it is doubtful that the patient is emotionally prepared to face clearly and appreciate fully the nature of that anxiety to which his symptoms constitute a defense. He will probably need to gain some emotional support from the doctor before he can face it."

*This students' guide from which I have been quoting then goes on to a consideration of personality trends as types of habitual response to inner conflicts and interpersonal issues. It deals also with such matters as temperament and the different levels of emotional maturity, with particular reference to getting information bearing on such matters in interviews.

These points which I have been discussing are very elementary. They are brought up for consideration here because we are all concerned with the kind of training which the medical profession in general receives in preparation for dealing with patients' personality problems. I have wished to gain from your discussion some help in improving our teaching.

DISCUSSION (*Abstract*)

Dr. William E. Gardner, Louisville, Ky.—Tremendous strides have been made in the methodology of teaching psychiatry within the past decade. Some of the methods are still in the experimental stage and methods are so eclectic that there may be danger of losing some desirable, but not too rigid uniformity, which is important to the young medical resident who is particularly interested in psychiatry, and who may be promoted by transfer from one psychiatric teaching center to another during the years in which he is attempting to qualify himself as a specialist in the field. It is obvious that uniformity should not approach the point of static complacency, for as soon as any process becomes too much standardized growth usually ceases. Some dissatisfaction and restlessness are essential to progress, but these should be controlled in orderly fashion. At the present stage of development it is, perhaps, fortunate that the better psychiatric teaching centers have followed, with some modifications, the fundamental concepts which were promulgated by Dr. Adolph Meyer, who no longer belongs to any particular institution, but to America.

While Dr. Whitehorn's interests cover a broad range in the field of psychiatry, I am sure that there is no phase of the subject which is more important to him than getting an adequate evaluation of the mental status of an individual who is the subject of a psychiatric examination. The brilliant exposition of his method of psychiatric interviewing clearly reveals where at least some of his greater interests lie. One cannot read the outline of his guide without being impressed by its extreme practicality, and yet it adheres to the basic principles of scientific investigation. He gives ample evidence of respectful regard for the six headings of the "mental status" in most general use, an explanation and amplification of which outline he says can be found in almost any modern textbook of psychiatry and in special manuals. He states, however, that these headings are not perhaps the most logical or significant which could be devised, but that they represent the almost universal American psychiatric practice.

In contrast to such headings for an objective study of the mental status, he stresses the importance of the other primary role of the interviewer, namely, the de-

gree and manner of his own active participation in the interview. He, himself, must show signs of interest and increasing understanding, a necessary condition of any conversation. Some response is needed to draw the patient out, and it serves as a test situation for the observation of the patient's interpersonal reactions. We are, furthermore, reminded by Dr. Whitehorn that every interview has its psychotherapeutic or "psychonoxious" implications. He states that it is incorrect to think that one can first gather the information, then start the psychotherapy. The latter begins at the very first contact, but we agree that this does not mean that the interviewer has to start at once offering opinion and advice.

The situation, as stated, is an early demonstration of the patient's reaction to an interpersonal relationship, and amplifications of the latter constitute the principal basis for an adequate personality study. In fact, Dr. Whitehorn has stated in a recent publication on "Psychotherapy" that personality may usefully be defined as "the organized system of sentiments by which a person carries on his relationships with others." Dr. Harry Stack Sullivan has sometimes even briefly defined the whole subject of psychiatry as the "science of interpersonal relationships." Hence, we are still further impressed by the importance of the psychiatric interview, and are not surprised that Dr. Whitehorn has made it the subject of a comprehensive paper. He begins with a discussion of the "presenting problem," which is of primary interest, and it is likely to be the topic which provides the soundest basis for a conversation of mutual interest. It is then important to keep the interview going and one should avoid getting into unprofitable arguments relative to the patient's peculiar beliefs, but in instances of too much self-depreciation one can sometimes advantageously refer to definite achievements and successes, especially if he has learned something about the patient in advance.

We heartily approve the author's comments on "irrelevant talk" when he states that if one is studying the personality of a patient there is no such thing as irrelevant talk; and that the irrelevance is merely a condition of the interviewer's mind. He does not know what to make of it. The observer may know what to listen for, but the observation was made that the patient's irrelevant talk has usually two meanings, evasion and self-justification, both very intimately related to the significance which the patient's illness has to him, as a person. It is recommended that the interviewer should, in general, keep his mouth shut in such a situation, and his mind alert. He has an opportunity to learn in this way what "it is all about." When he does resume the conversation, he should talk in language which the patient can understand, and avoid as much as possible "psychiatric patter" to which the author refers.

Dr. Raymond S. Crispell, Durham, N. C.—Psychiatry has been actively propagandizing for added time, added personnel, and for an increased budget in the medical curriculum.

The new psychiatry emphasizes method as much as content, and is as much a point of view as it is a subject or a medical specialty. It attempts to restore the doctor-patient relationship that many, if not most, of the older practitioners rather naturally had and which our modern and rather cold and impersonal scientific medicine rather tends to neglect. With its emphasis upon the patient as well as upon the disease, modern psychiatry definitely emphasizes the art as well as the science of medicine. It aims to keep some patients within the fold of regular medicine rather than straying off into the fields of irregular practice.

But psychiatry also definitely runs the risk of claiming too much and spreading too thin. It should avoid assuming promises and responsibilities that it cannot fulfill. A concrete program such as Dr. Whitehorn has given as to the contents and as to the methods is in order, and further discussion as to the principles and practices of psychologic teaching are greatly needed so that we may have a united program and some attempt at standardization at the different medical schools.

We should remember that the psychiatrist has no monopoly on teaching the art of medicine and the approach to the patient. He can contribute greatly to this and add refinements, but all teachers of medicine share in these responsibilities in the medical schools. Many medical teachers do this superbly, others are not helpful, to say the least. Sometimes a non-psychiatric colleague, by his approach or by his words, perhaps by a tactless approach to the patient, and by his slighting remarks in the presence of the student in referring to the mental and nervous patient as "cracked" or "bad news" or as a poor, miserable and, by inference, hopeless individual, can easily do more harm in a few minutes than the psychiatrist can do good in many hours.

Dr. Whitehorn's method of instruction includes that by example and precept. This is a valuable way and one that is easy for the good instructor and student, and one that is sometimes neglected. Certainly this method by example and precept is not sufficiently overtly emphasized in medical education.

But besides the factor of the instructor, there is the factor of the student. Some students by their background and training and experience are naturally interested in people and in patients and are polite and tactful in their approach. Many seem to have a natural interest in human nature and a capacity to understand and handle people, and influence people beneficially; they have the something, be it called common sense, intuition, a social sense, or what-not, that just needs to be polished and refined by the psychiatric instructors. We must confess that there are other students who do not seem to have this something, who do not seem to be interested or naturally adept in approaching, in understanding and in handling human nature, especially the foibles and weaknesses of human nature. Some students are indifferent, some even antagonistic; many are too concrete and too surgically minded to grasp the more abstract and less specific psychiatric approach and treatment. These students can be easily repulsed by a too detailed and a too theoretical psychiatric presentation. It is the task of the psychiatrist to cultivate the proper attitudes of the student toward people in general and the patient in particular. Sometimes this is a difficult undertaking. A practical and workable method, such as Dr. Whitehorn has outlined, should be of great value to all of us in doing this. But mention should be made of the helps as well as the hindrances, and we can usually count on, and draw on, a lively interest and a fund of common sense in the superior student.

Dr. Whitehorn's paper brings to our attention the necessity of cultivating that interpersonal relationship between physician and patient that we all consider necessary, and it points out a way of showing us how to do this. It is a subject that is not easy to present and to outline and to elucidate.

Dr. Whitehorn mentions the use of the telediphone in psychiatric instruction. It sounds very ingenious and well worth investigating by every psychiatric department in a medical school. Probably there are many more mechanical and visual aids in teaching psychiatry, such as by moving pictures, charts, and so forth, that are not sufficiently used and are not easily assembled. Perhaps if we pooled our resources as well as our propaganda, it would be helpful in making good our claims as to the importance of psychiatry in the medical curriculum and increase the effectiveness of our teaching. While allowing for a certain elasticity as to the teaching of psychiatry in the medical schools, it is hoped that some day instead of the mimeographed sheets we all use we may have somewhat standard and printed outlines and textbooks that are generally acceptable.

I think the main point of Dr. Whitehorn's paper which struck Dr. Gardner and one which struck me also is that we could be better interviewers. Dr. Whitehorn calls our attention to the fact that interviews are at the same time diagnostic and therapeutic, and that we cannot separate these two things. We must be a little careful about mixing too much therapy into our diagnostic interview, and, as Dr. Gardner pointed out, there is a little plea in the paper for some sort of standardization, but not at the expense of rigidity in the teaching of psychiatry in our medical schools.

Dr. Lewis A. Golden, New Orleans, La.—Those of us who have had the privilege of having been associated with Dr. Whitehorn, at some time in our period of training, have always admired greatly his ability to get information from a patient and the type of rapport which he managed to develop rather quickly between the patient and himself. His unusual practical understanding and interpretation during his psychiatric interviews won our envy and admiration. Therefore, I am extremely grateful for the sort of meat that he has presented to us in his paper. For he is attempting to pass on to us the technic which he has developed for himself ably and for which we have to struggle with much difficulty. It is seldom that we get direct statements as to how psychiatric material can be obtained.

Dr. Whitehorn (closing).—This paper was concerned primarily with the technic of interviewing. Our tendency in these two years has been to assume too great a knowledge on the part of the medical student regarding the physiology of emotion. That is a technical problem, to correlate the instruction in the different courses in such a way as to provide the student with a more intelligent understanding of the effects of emotional reaction on bodily processes, and vice versa. This is a highly important matter in psychiatric teaching.

If we could only convince the students that the psychiatric interview is an important matter, the efficacy of our instruction would reach very much higher levels than it has yet reached.

RENAL COMPLICATIONS IN ACUTE GINGIVOSTOMATITIS IN CHILDREN*

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Numerous excellent clinical studies[1 2 3 4 5] during recent years have called attention to the fact that gingivostomatitis occurs as an acute infectious disease of childhood, with its peak of incidence in the second and third years of life. Moreover, the skepticism of Brennemann,[2] Lichtenberg[6] and others toward the etiologic role of the fusospirochetal organisms in this disease has stimulated discussion and search for other causative agents. Black[1] suggests that coccal organisms and, more recently, Dodd *et alii*[7] produce strong evidence for a virus origin of the disease.

In these various clinical and experimental studies, I find very little mention of kidney disturbance. Stahr,[4] advocating use of the weaker bismuth preparations for injection therapy, notes that nephritis may occur after injection of the stronger preparations of bismuth such as are used in antiluetic therapy, but gives no details. Black records 8 negative urinalyses in a series of 69 children with gingivostomatitis. It is my purpose to indicate by case reports the possibility of serious renal complications following injections of soluble bismuth for treatment of the disease; furthermore, to show by additional case reports and urinary studies that renal disturbance may occur in this disease even when heavy metals are not used.

In reviewing these cases of acute gingivostomatitis, all of which have occurred in the private practice of three pediatricians at the Children's Clinic in Shreveport,* I have included only the type which occurred as an acute disease of childhood, adhering to the criteria delineated by Black,[1] which excludes instances of small localized ulcerations or areas of gum inflammation, also the stomatitis which is secondary to such nutritional deficiencies as scurvy or to the blood dyscrasias. I have also omitted consideration of ulcerative tonsillitis or Vin-

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*I wish to express my appreciation to Drs. R. T. Lucas and S. G. Wolfe for their cooperation in this study and to acknowledge inclusion of their cases in this report.

cent's angina, since throat infections are well established as antecedents of nephritis.

With these limitations, we have records of 146 children with acute gingivostomatitis, with ages ranging from 7 months to 12 years. The age incidence corresponds closely with previous reports,[1 3] in that 116 (80 per cent) of the children were in the age group of 1 to 4 years, inclusive, and 51 (35 per cent) were in the third year of life. Eighty-two (56 per cent) were girls and 64 (44 per cent) were boys.

RENAL COMPLICATIONS FOLLOWING BISMUTH INJECTIONS

Our attention was first attracted to the severe renal involvement which sometimes follows treatment of this disease in small children by injections of soluble bismuth. Various spirocheticidal drugs, especially arsenicals and bismuth, have been in vogue for a number of years, because of the belief in the fusospirochetal origin of the disease.[8 9 10] The five children whose case reports follow were referred to us or were seen in consultation because of nephritis or anuria after injection of bismuth for treatment of acute gingivostomatitis.

Case 1.—L. K., a white girl, 27 months of age, was referred from a near-by town on July 15, 1933. Seven days previously she had been given one intramuscular injection of sodium bismuth thiogallate ("thiobismol") for treatment of acute gingivostomatitis of 3 days' duration and of sufficient severity to give rise to a body temperature of 103 to 104° F. On the day following the injection of bismuth, oliguria and edema appeared and only one to three ounces of urine were passed daily for the next six days. Vomiting had been present for three days.

Physical examination showed a toxic, fretful child, with moderate edema of the face and extremities. The lips were cracked, the oral mucosa was reddened with some swelling of the gums and a moderate number of shallow ulcers on the gums and tongue.

Examination of a single specimen of urine showed 1 plus albumin, 1 plus acetone and a moderate number of hyaline and granular casts.

The child was hospitalized, but on the same day was taken home by the parents. The home physician reported improvement on forced fluids, with eventual recovery.

Case 2.—E. F., a white girl, 7 years of age, was sent to a local hospital by the home physician on November 26, 1933. A febrile onset seven days previously was attributed to malaria and "atabrine" was given. Two days later the mouth and throat became sore and on the following day a diagnosis of Vincent's infection was made and a single injection of bismuth was given intramuscularly. For the next four days, immediately prior to entry into the hospital, the child was drowsy and toxic, vomited frequently and refused all foods. Scant amounts of urine were passed.

Physical examination showed a thin, dehydrated and toxic girl. The lips were cracked and sore, the breath fetid. The gums and tongue margins were acutely inflamed with numerous ragged ulcers. The pharynx was reddened and several small ulcers were seen on the anterior pillars.

Laboratory examination on admission was reported as follows: white blood cells 11,500, with a differential count of 80 per cent neutrophils and 20 per cent lymphocytes; no malaria parasites were found. The urine was acid, with specific gravity 1.022; albumin, sugar and acetone were reported 4 plus; there were occasional pus cells, no red blood cells and many granular casts.

Four hundred c. c. of dextrose and saline solution were given parenterally, with small amounts of insulin. Fluids were given orally as tolerated. On the following day the urine report (*Table 1*) showed albumin 2 plus, sugar and acetone 1 plus and waxy as well as hyaline and granular casts appeared. Clinical improvement was maintained through daily administration of ample fluids. The mouth was kept clean with hydrogen peroxide.

The urine progressively cleared, although a few casts persisted on December 7, when she went home. Her family physician reported complete recovery.

Case 3.—D. N., a white girl, aged 2 years, was seen in consultation at a local hospital on September 9, 1935. Acute stomatitis had appeared with a febrile onset eight days previously. Four days of local therapy with gentian violet solution produced no improvement and a single injection of ½ grain of bismuth was given into the muscle. Two days later there was onset of anuria and vomiting, which continued until after her entry into the hospital.

Physical examination showed an irritable, restless child

URINALYSES OF CASE 2 (E. F.)

Date 1933	Albumin	Acetone	Pus Cells	R.B.C.	Casts
11/26	4+	4+	Occasional	0	Loaded with granular
11/27	2+	plus	Occasional	0	Loaded with granular
11/28	plus	2+	0	0	Few waxy
12/ 1	Trace	Trace	0	0	Few waxy and granular
12/ 4	None	None	Occasional	0	Few hyaline and granular
12/ 7	None	None	Few	0	Few hyaline and granular

Table 1

with a temperature of 102° F. Saliva was excessive and the gums and tongue margins were inflamed and tender with two ulcers on the tongue. The pharynx and ear drums were moderately reddened. Two lesions resembling impetigo were present on the chin. The submaxillary and the upper anterior cervical lymph nodes were enlarged.

Despite the administration of parenteral fluids, anuria continued for two more days until September 11, when 5 c. c. of urine were secured by catheter. The child, formerly restless, had become drowsy, edema of the face and extremities had appeared, vomiting continued and the systolic blood pressure had reached 120 mm. Fifty per cent magnesium sulfate was given intramuscularly and by the following day there was slight improvement, with a fall in blood pressure to 110 mm. and the voluntary voiding of small quantities of urine. Fluids were continued orally and intravenously and magnesium sulfate orally. Progressive improvement was manifested.

The first urine specimen (*Table 2*) on September 12, showed a trace of albumin, a few pus cells, occasional red blood cells and a few waxy and granular casts. Two days later the pus cells and casts were more numerous, but gradual improvement started and by September 30 a trace of albumin was the only abnormal finding. This disappeared by October 14 and several subsequent urinalyses in 1939 and 1940 showed no abnormalities.

Case 4.—P. T., a white boy, 22 months of age, was seen in consultation on June 20, 1937, because of anuria. In good health until June 13, he became ill on that date with fever and sore mouth. On the following day he had anorexia, a few loose stools and his temperature reached 103° F. Small ulcers appeared on the gums, tongue, lips, soft palate and anterior pillars. He was placed in the hospital on June 17 and 20 c. c. of dextrose solution, containing 3 grains of sodium bismuth thiogallate, were given intravenously about 7:00 p. m. Urine voided on the following morning (*Table 3*) contained 2 plus albumin, 2 plus acetone and occasional pus cells. Before this report was received by the attending physician, he was given two additional intravenous injections of dextrose and bismuth thiogallate. No further urination occurred for five days and the child became increasingly edematous.

When seen in consultation on June 20, he was toxic and drowsy, with generalized edema. The gums were acutely swollen, numerous ulcers were scattered over the oral mucosa, the saliva was profuse and oral fetor was pronounced. The child's temperature reached 103° F. on this day.

Magnesium sulfate was given by nasal tube and fluids were given by this means, in addition to 500 c. c. of dextrose solution given intravenously each day. Local treatment of the infection included hydrogen peroxide cleansing and 2 per cent gentian violet application. The temperature fell to 99.6° F. by June 22, and on the following day the child voided, the urine containing 1 plus albumin, 2 plus pus cells and 8 to 10 waxy casts per low power field (*Table 3*). He improved slowly. When discharged from the hospital on July 1 he was still in poor physical condition and the urine showed 2 plus albumin, 1 plus pus cells and a few red blood cells. His physician reported that he subsequently made a complete recovery.

Case 5.—P. H., a white girl, 16 months of age, was seen in consultation in her home town on May 31 and June 2, 1939 (by R. T. Lucas). She had been given two injections of sodium bismuth thiogallate for treatment of gingivostomatitis of several days' duration. It was stated that she passed urine for a few hours after the second injection of bismuth, then complete suppression of urine had supervened for a period of 72 hours. Generalized edema increased progressively and several conclusive seizures occurred on May 31.

Physical examination showed an edematous, semiconscious child. The gums were acutely reddened and ul-

URINALYSES OF CASE 3 (D. N.)

Date 1935	Albumin	Acetone	Pus Cells	R.B.C.	Casts
9/12	Trace	0	Few	Occasional	Waxy and granular
9/14	Trace	0	4+	0	3+ hyaline, few waxy
9/16	Trace	0	Few	0	2+ hyaline, few waxy
9/30	Trace	0	0	0	0
10/14	0	0	Occasional	0	0

Table 2

URINALYSES OF CASE 4 (P. T.)

Date 1937	Albumin	Acetone	Pus Cells	R.B.C.	Casts
6/18	2 plus	2 plus	Occasional	0	0
6/19 to 6/23			anuria		
6/25	plus	0	2 plus	0	8-10 waxy per h. p. f.
6/28	2 plus	0	plus	0	15-20 waxy and granular
7/ 1	2 plus	0	plus	Few	0

Table 3

cerated, bleeding readily. Smears were reported positive for fusiform and spirochetal organisms.

The suggested treatment, by intramuscular and later oral administration of magnesium sulfate and intravenous drip of isotonic dextrose solution, was adopted by the home physician. He reported that the anuria lasted for five days, the child eventually recovering completely. Unfortunately, urinalyses were not made after urinary flow was established.

ACUTE NEPHRITIS COMPLICATING GINGIVOSTOMATITIS IN THE ABSENCE OF BISMUTH THERAPY

The development of renal complications after bismuth therapy does not necessarily indicate the presence of renal toxins in this disease, as the renal damage and anuria may be the result of bismuth poisoning alone, accentuated by certain factors which will be discussed later. However, the presence of renal toxins from the infection itself is suggested by the observation of children with gingivostomatitis who did not receive treatment with bismuth or other heavy metals, yet developed varying degrees of renal disturbance. Three case histories are presented herewith.

Case 6.—P. C., a white girl, 7 years of age, was brought to the office on October 16, 1932, with the history of fever for three days and sore mouth for 36 hours. Examination showed acutely inflamed and swollen gums, moderately reddened pharynx, numerous ulcers on the tongue, gums, buccal mucosa and lips, with 2 small ulcers on the pharynx. The child was restless and toxic with a temperature of 102° F. Smears from the mouth and pharynx showed numerous spirochetes and fusiform bacilli.

A urine specimen on the following day (*Table 4*) contained 5 to 6 pus cells and 1 to 2 hyaline casts per high power field. Two days later the urine was completely negative, but on October 21 occasional red blood cells were reported. The child progressed through the usual phases of the disease, recovering within two weeks' time. Only three urine specimens were studied and the presence of mild, but definite, abnormalities in two of the three suggests a mild and evanescent renal injury.

Case 7.—D. R. B., a 3-year-old white boy, was seen in consultation on April 15, 1939, because of sore mouth and increasing edema of the face. On the tenth day of recuperation from a mild attack of measles, he had developed acute gingivostomatitis with fever, salivation and anorexia. Edema of the eyelids was noted on the third day of this illness. Treatment by the family physician consisted of sodium perborate solution as a mouth wash and gentian violet applications.

Physical examination showed moderate toxicity, slight edema of the face, inflammation and shallow ulcerations of the gums, tongue margins and buccal mucosa. The pharynx was mildly reddened. Systolic blood pressure measured 116 mm., the diastolic 78 mm.

On April 16, the child was hospitalized because of failure to improve. Urinalysis on this date (*Table 5*) showed a trace of albumin, a few pus cells and 3 plus red blood cells. The local therapy was continued, oral fluids were forced to the point of tolerance and dextrose solution was given by intravenous drip.

On April 18, edema had appeared in the extremities as well as in the face and the child was drowsy. Blood pressure readings were 130 mm. systolic, 92 mm. diastolic. Blood nonprotein nitrogen was 24 mg. per 100 c. c., the serum albumin 4 9 and serum globulin 1.7 per cent. The urine contained traces of albumin and sugar, 1 plus pus cells, 2 plus red blood cells, 3 plus hyaline and granular casts. Because of the evidences of cerebral edema, saturated magnesium sulfate solu-

URINALYSES OF CASE 6 (P. C.)

Date 1939	Albumin	Acetone	Pus Cells	R.B.C.	Casts
10/17	0	0	5-6/ h. p. f.	0	1-2 hyaline per h. p. f.
10/19	0	0	1-3/ h. p. f.	0	0
10/21	0	0	2-3/ h. p. f.	Occasional	0

Table 4

URINALYSES OF CASE 7 (D. R. B.)

Date 1939	Albumin	Acetone	Pus Cells	R.B.C.	Casts
4/16	Trace	0	Few	3 plus	0
4/17	Trace	0	Plus	3 plus	0
4/18	Trace	0	Plus	2 plus	Three plus hyaline and granular
4/19	Trace	0	Few	Few	Few hyaline and granular
4/20	Slight trace	0	Plus	Few	Two plus hyaline and granular
4/21	Slight trace	0	Plus	Occasional	Few hyaline and granular
4/22	0	0	Few	Occasional	Occasional hyaline and granular

Table 5

tion was given by mouth and dextrose solution intravenously.

On the following day the child was clinically improved, more alert, the blood pressure down and the temperature lower. Improvement continued progressively and on April 22, when he was discharged from the hospital, the urine showed no albumin, a few pus cells, only occasional red blood cells and hyaline casts. Three subsequent urinalyses during 1939 and 1940 were negative.

Case 8.—G. B., a white boy of 5 years, was entered in a local hospital on November 13, 1939, because of high fever and sore mouth of four days' duration. His temperature was 103° F.; the gums and lips were reddened and swollen and ulcers were present on the gums and tongue margins. The pharynx and tonsils were mildly reddened, with no ulcerations or membrane. The submaxillary glands were enlarged and tender. Physical examination showed nothing else of significance.

A smear from the gums was reported as showing pus cells, 4 plus "mixed bacteria" and 4 plus fusiform bacilli and spirochetes. A smear from the pharynx showed a few fusospirochetal organisms. The first urine specimen (*Table 6*) contained 2 plus albumin and acetone, 1 plus pus cells and 2 plus hyaline and granular casts. On the following day, no albumin was reported in the urine, but occasional pus cells and hyaline casts persisted. The latter elements had disappeared on the third hospital day.

Treatment included cleansing of the mouth with hydrogen peroxide and applications of gentian violet. Fluids were taken fairly well by mouth and with subsidence of the general symptoms, parenteral fluids were not considered necessary. When discharged on November 17, the mouth was healing, the temperature normal and the urine negative.

URINARY STUDIES ON OTHER CASES

The occurrence of *Cases 7* and *8* during 1939 stimulated a more careful study of past records and subsequent cases from the standpoint of renal irritation. A review of our records, with the addition of several instances of examination of single specimens of urine during the past year, gives a total of 20 children who had one to two urinalyses during acute phase of gingivostomatitis other than the 8 whose case reports have been presented. Of these 20 children, one boy of 2 years had a trace of albumin with a few pus cells in the urine; a girl of 2 years had a trace of albumin without other abnormal findings. In both instances, urinalysis on the following day was negative. The other 18 children had negative urinalyses.

During the past year we have made special efforts to secure from all children seen at the Children's Clinic during the acute phase of gingivostomatitis 12 hour urine specimens on which Addis sedimentation counts could be made. Several difficulties were encountered, chiefly the fact that the disease occurs among the younger children in whom urinary control is often not well established, preventing the mothers from securing suitable specimens. However, we managed to secure 20 satisfactory specimens from 11 children, the results of which are listed in *Table 7*, together with the average figures for Addis counts in children, as listed by Snoke.[11]

An examination of these sedimentation counts, excluding from consideration the leukocytes in the voided specimens and the trace of albumin in the one specimen with a high leukocyte count, shows 3 children to have had erythrocytes or casts present in abnormal numbers. M. J. O. had over 1½ million red cells in one specimen, whereas the average is 81,600 and the upper limit is 600,000. B. B. on two consecutive days had over a half million red blood cells, far above the average and almost at the figure proposed by Snoke as an upper limit. C. A. S. had 350,000 red cells and as many casts, both above the average, and the casts far above the upper limit.

DISCUSSION

In a consideration of the pathogenesis of renal injury with anuria or oliguria, following the injection of soluble bismuth for treatment of this disease as in *Cases 1* to *5*, the factor of primary importance is undoubtedly the direct toxic effect of bismuth on the epithelium of the kidney tubules. There must be other factors involved, however, as the incidence of nephritis and anuria is higher following the injection of bismuth for treatment of this disease than in its use in treatment of other conditions in children, congenital

URINALYSES OF CASE 8 (G. B.)

Date 1939	Albumin	Acetone	Pus Cells	R.B.C.	Casts
11/13	2 plus	2 plus	Plus	0	Two plus hyaline and granular
11/14	0	0	Occasional	0	Occasional hyaline
11/15	0	0	Few	0	0

Table 6

syphilis for example. According to Cole[12] and Jeans,[13] nephritis and anuria are rare following bismuth injections in the treatment of congenital syphilis. The latter says that albuminuria has been observed, but only when soluble bismuth was used in excess of the standard dosage. It would also appear that this complication is rare following bismuth therapy for Vincent's infection in adults.

However, gingivostomatitis in the young child appears as an acute illness, with symptoms of general toxemia, fever and dehydration. The dehydration is accentuated by the child's refusal to take foods and fluids because of the sore mouth. Under these circumstances, the rapid absorption of soluble bismuth and its filtration through the glomerulus in a small volume of urine produces a high concentration of bismuth in contact with the tubular epithelium. Cole *et alii*[14] report, for example, that injection of sodium bismuth thioglycollate containing 38 per cent of bismuth produces a high level of bismuth in the blood within a matter of hours and that it is absorbed and excreted within 24 hours.

ADDIS SEDIMENTATION COUNTS ON 12-HOUR URINE SPECIMENS OF CHILDREN WITH ACUTE GINGIVOSTOMATITIS, WITH NORMAL COUNTS AS GIVEN BY SNOKE FOR COMPARISON

Name	Date 1940	Leukocytes	Erythrocytes	Casts
M.J.	2/27	4,827,777	0	0
	2/28	7,628,888	1,611,111	0
	3/2	5,062,222	37,777	0
	3/8	4,000,000	33,333	0
	3/19	478,000	0	0
B.B.	3/31	407,500	543,333	0
	4/1	407,500	543,333	0
C.A.S.	5/7	6,962,500	350,000	350,000
J.C.	6/15	459,333	0	0
M.E.D.	6/18	561,000	0	0
M.B.	6/26	22,946,000	0	0
	6/28	14,495,000	0	0
	7/3	818,333	0	0
H.G.	10/4	287,000	0	0
D.S.	10/23	149,689	0	0
	10/24	574,000	0	0
	10/26	122,221	0	0
S.S.	11/3	425,600	0	0
W.E.C.	11/4	372,944	213,111	0
R.M.M.	11/9	296,083	62,700	6,966
Average—Snoke		———	81,600	1,230
Upper limit—Snoke		2,000,000	600,000	10,000

Table 7

The reaction on the epithelium of the convoluted tubules is probably comparable to that seen in mercury poisoning. Postmortem examination of kidneys after mercury poisoning shows little glomerular damage, but widespread degeneration and necrosis in the cells of the convoluted tubules. Richards[15] has shown that in the frog kidney after mercury poisoning the tubules are so injured that all of the glomerular filtrate diffuses back into the blood stream, producing anuria. It is now generally believed that in the human, anuria from heavy metal poisoning similarly results not from interference with glomerular filtration or the blocking of the tubules from acute swelling of the damaged cells, but rather from the degeneration and sloughing off of the tubular epithelium, allowing total resorption of the glomerular filtrate back into the blood stream.

If recovery occurs, the tubular epithelium regenerates and resumes its function of selective resorption, the urinary flow then being re-established. Apparently, in both mercury and bismuth poisoning, if recovery occurs, it is complete.

Accepting these facts as of primary importance, there remains the possibility that in some cases of acute gingivostomatitis there may be renal toxins which render the kidney cells more susceptible to damage by the bismuth.

Aside from any consideration of bismuth injury, the conception of renal toxins in some cases of acute gingivostomatitis is accentuated by *Cases 6, 7* and *8*, in which varying degrees of renal damage occurred during the course of apparently typical and uncomplicated attacks of this disease. A report of three cases is inadequate evidence upon which to postulate the presence of a previously unreported complication in a disease which is not rare, especially since fairly large groups of cases have been studied by competent observers. The objection may also be raised that an oral infection like gingivostomatitis could mask an accompanying acute pharyngitis or tonsillitis. However, because of my interest in this question, I attempted, as carefully as possible, to ascertain that no other infections were present

in *Cases 8* and *9*, which were under my personal care.

Furthermore, the results of urinalyses of single specimens and the Addis sedimentation counts of 12-hour specimens of urine corroborate the hypothesis of renal toxins in this disease, since albumin, red blood cells and casts in more than normal amounts appear sufficiently often to be of more than casual significance.

We should not be particularly surprised to find renal toxins present in acute gingivostomatitis, when we consider that it is an acute disease of early childhood, a disease whose systemic manifestations, leukocytosis, regional adenopathy and local pathology may all be as severe as in acute pharyngitis, acute tonsillitis, otitis media and the other upper respiratory tract infections which are known to cause acute nephritis. Smith[16] says that occasionally there is an exanthematous eruption of the skin not unlike measles. Even in adults, systemic reactions occur, Barrow[17] reporting a series of 14 cases in which minimal local lesions were accompanied by definite systemic reactions, including urticaria.

From a bacteriologic standpoint, the streptococcus has been suspected and accused of being concerned in the causation of gingivostomatitis. Smith[16] found coccal forms as well as fusospirochetal organisms in many instances, especially in the severe cases. On the basis of experimental work, he postulates a symbiosis of spirochetes, a fusiform bacillus, a vibrio and a hemolytic streptococcus in the causation of lung gangrene. Black[1] suggested the coccal origin of acute gingivostomatitis and Woodburne[18] describes cases of acute stomatitis in children of streptococcic and staphylococcic origin, which can be differentiated from the fusospirochetal type only by bacteriologic study.

If this disease is eventually demonstrated to be of fusospirochetal origin, as Smith contends, or of virus causation, a complicating or accompanying coccal infection in the oral cavity may in some instances be responsible for renal damage. It does not appear that the fusospirochetal organisms *per se* will cause damage to the kidneys. Weiss[19] was able to infect white mice so heavily with these organisms that positive blood cultures could be secured over a long period of time, but no damage to the internal organs was found on autopsy.

Further and more careful clinical studies, as well as experimental studies, are needed in order to clarify this question of the presence and origin of renal toxins in acute gingivostomatitis of children. In the meantime, there is no question of the danger of acute nephritis and anuria following the injection of soluble bismuth, and this form of treatment, in our opinion, should be avoided.

CONCLUSIONS

(1) Five cases are reported of acute nephritis with oliguria or anuria following the injection of soluble bismuth for the treatment of acute gingivostomatitis in children.

(2) Three cases are reported of acute nephritis complicating this disease, in the absence of heavy metal therapy.

(3) Urine studies, including Addis sedimentation counts, give evidence, through varying degrees of renal irritation, of the presence of renal toxins in acute gingivostomatitis.

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THE CORRECTION OF DISORDERS OF SPEECH*

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INTRODUCTION

Speech correction is not a new field that has developed in recent times. The Holy Bible has a number of references both to speech defects and their social significance. In the writings of the ancient Greeks there are a number of references to defects of speech. Herodotus writes of Battos who stuttered from early childhood and who was advised by the Pythian priestess to emigrate south to Libya. Thus a change of climate is the earliest known suggested cure for stuttering. Undoubtedly the best known of the ancient speech defectives was Demosthenes, whose cure by pebbles in the mouth is known to every school boy. According to Cicero, Demosthenes was unable to pronounce the sound "r," which throws considerable doubt on his being properly classified as a stutterer. More likely he lisped or was tongue-tied, and hence his use of pebbles under the tongue seems logical. However, we have known several stutterers who, erroneously believing that Demosthenes was also a stutterer, have tried the use of pebbles and reluctantly abandoned this therapy only after swallowing several of them.

During Medieval times doubtless there was little speech correction. But beginning with the writings of Mercurialis[1] in the latter part of the sixteenth century, we have four and a half centuries of careful thought and more or less scientific research into the etiology of stuttering with a wide variety of proposed therapies. Some of the more significant aspects of this research are very well known, hence suffice it to say that, despite 456 years of consideration and investigation by some of the greatest minds in medicine, psychology and speech, we are still far from knowing the etiology of stuttering or methods of its cure.

It was not until modern times that any investigation was made in other types of speech disorders. The reason is obvious, the development of sound theories of defective speech has paralleled the development of modern science. No better example could be cited than that of aphasia. Head[2] makes this point quite clear in his discussion of the contribution of Gall (publications, 1802-25) Bouillard (1825), Broca (1861), and Hughlings Jackson (publications 1864-93). During the nineteenth and early twentieth centuries the development of therapy did not keep pace with etiologic theories. Speech correction was generally limited to the two disorders, aphasia and stuttering, all other disorders of speech being largely ignored. The great physiologists who were advancing our knowledge of aphasia, Hughlings Jackson, Wernick, Pierre Marie and others, gave some attention to clinical treatment but mainly in an effort to establish their theories. On the other hand, the treatment of stammering, as it then was called, did not lack for practitioners, for the "stammering school" abounded both in this country and Europe. As to methods of treatment, each school boasted of using an exclusive method designed by the founder of the school, which was the only method guaranteed to cure stammering.

The past quarter of a century has seen the development of a large number of speech clinics in connection with hospitals, universities, colleges and public schools. A number of universities are carrying on an extensive program of research in both the pathology and correction of speech disorders.

CLASSIFICATION OF DISORDERS OF SPEECH

In classifying disorders of speech it is well to keep in mind the distinction between a defect of speech and a disorder. Speech pathologists generally use the term defect when referring to the acoustic end-result, while the term disorder also includes the underlying pathology. Thus all disorders of speech manifest themselves as a speech defect, while a defect may or may not represent a disorder.

The diagnosis of the defect is usually quite easy; that of the disorder may be very difficult and may involve consultation of various medical and other specialists to determine the underlying pathology. By the administration of properly designed speech tests, one determines whether the defect is primarily articulatory, phonatory or linguistic in type. But it is not enough to know which speech sounds are defective; one must inquire why they are defective. It is not enough to know that certain lingual sounds are improperly produced; one must determine why the tongue fails to move properly in the production of these sounds. The answer to this question may determine whether

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the patient should be referred to another specialist or assigned a set of remedial speech exercises. As West[3] has pointed out, the clinician should canvass four etiologic categories, or distinct types of causation, one or more of which may be affecting the speech of the patient: (1) the physiologic, (2) the anatomical, (3) the psychogenic and (4) the imitative.

The imitative are defects only and we shall not discuss them further in this paper. Rather we shall concern ourselves primarily with a discussion of those disorders in which the otolaryngologist is most likely to be interested, that is, the physiologic and the anatomical. From the standpoint of the acoustic end-result, they will be articulatory and phonatory in nature.

PHONATORY DISORDERS OF SPEECH

The need for cooperation between speech correctionists and members of the medical profession is clearly shown by a consideration of the dysphonias, for it is evident that a vigorous program of vocal exercises could cause much harm to a patient suffering from an active disease of the larynx. Consequently many of our writers recommend medical consultation prior to any remedial speech training for phonatory cases. In this connection, Van Riper[4] advises that "No speech correction work should be done without medical approval" for many types of dysphonias.

The various types of dysphonias are usually classified as disorders of pitch, intensity and quality. Or, stating it from a different point of view, the normal voice possesses adequate loudness, a pitch appropriate to the age and sex, and clearness of tone; any departure from these norms should be regarded as a dysphonia.

It is essential that a thorough laryngoscopic examination of the patient be made by a specialist, either the clinician if qualified or by a laryngologist. This examination, however, should be made from two points of view: firstly, as to the presence of any active pathologic condition or organic abnormalities; and secondly, as to the characteristics of an ideal glottis for phonation. West[5] has said that there are at least four characteristics which the ideal glottis for phonation should possess:

(1) It must have two edges that can be brought into exactly parallel approximation.

(2) This approximation must be so close as to prevent the escape of any air except when driven by a real chest pressure.

(3) The approximation must not be so close as to prevent the free movement of the bands when set in vibration by the air stream.

(4) The chambers of the throat and mouth should be patent enough to permit the proper resonance of the tone and its proper delivery into the outer air.

As a result of the laryngoscopic examination the patient is usually placed in one of the following categories:

(1) An active pathologic condition requiring medical or surgical treatment with no speech correction until authorized by the physician. Frequently, with the clearing up of the pathologic condition, the need for speech correction is no longer present.

(2) An organic abnormality rendering the patient unable to profit by speech training. Such patients should be dismissed from the clinic as impossible to aid.

(3) Assigned a series of therapeutic speech exercises for the correction of the disorder as thus far determined.

DYSPHONIA

Abridged case histories follow, giving only the significant facts, from the files of the Speech Clinic of the University of Alabama.

Case 1.—L. H., a man, aged 24, a university student, came to the clinic because of a persistent hoarseness in his voice. Laryngoscopic examination showed a small nodule on the left vocal fold. The patient was referred to a laryngologist who advised immediate removal. The vocal nodule was removed operatively.

The prognosis is good.

Therapy: The patient was advised to speak in a low register and to avoid shouting. No speech training was given.

Case 2.—B. T., an athlete (football player), aged 20, spoke in a very low, husky, breathy voice. He said that he had had such a voice as long as he could remember. Laryngoscopic examination showed an extreme hyperplastic left vocal fold, and an extreme hypoplastic right one. No active disease was present. Approximation of the vocal folds was difficult and occurred near the edge of the right ventricular fold, the left vocal fold crossing the mid-line to meet the right for closure of the glottis.

The prognosis was extremely poor.

He was denied admission to the speech clinic as beyond remedial aid.

Case 3.—N. M., a man, aged 20, college junior, had an extremely low, breathy voice, at times hardly more than a whisper. Phonation was completely absent for most consonants and all vowels were highly aspirated. The patient said, corroborated by his mother, that his voice was normal until puberty (age 13) when it changed to the present condition. He was in advanced R. O. T. C., and when given command of a group of cadets he gave his commands to them in a loud, clear.

normal voice. Also when playing ball with his friends, he spoke to them in a normal voice. Laryngoscopic examination showed no gross abnormality of the larynx.

The diagnosis was dysphonia bordering upon aphonia due to a physiologic or psychologic imbalance. The physician first administered 15 drops of dilute hydrochloric acid daily. After two weeks no change was noted and the treatment was abandoned. We then agreed that it could be hysterical dysphonia induced by fear and tensions during puberty. With the patient's permission, scopolamine was administered by the physician. During the time the patient was in "the twilight zone," several recordings were made of his voice. As a result of prompting the patient often read in a normal voice. Thus the final diagnosis was an hysterical dysphonia.

The prognosis is fairly good, depending upon the patient's ability to make the proper psychologic adjustments.

The patient was assigned to the speech clinic and remedial procedures were inaugurated immediately. Relaxation and breathing exercises were first used, followed by vocal exercises designed to produce clear vowel tones. Once these clear tones were satisfactorily produced, speech drills were added to his routine for carry-over into his every-day speaking voice. At the end of the school year his voice was almost normal, although some huskiness and breathiness were still evident. His failure to return to school the following year prevented further training.

Two other types of phonatory disorders should be mentioned: (1) pitch inappropriate to the age and sex of the individual; and (2) the laryngectomized.

The speech clinician or laryngologist is often consulted on cases where the pitch of the patient's voice is inappropriate to his age and sex. These cases usually fall into two categories: (1) an improper tone placement resulting in an unnaturally high or low pitched voice, which can usually be corrected by voice placement exercises designed to teach the patient to use a normal pitch; and (2) endocrine imbalance or delayed maturation, usually males of senior high school or college age, whose voices have not changed, and for whom no speech training is indicated, although supervision may be desirable while the change is under way. The speech clinician must make a careful distinction between these two categories and, as a general rule, should refer all such cases to a physician for corroborative diagnosis.

Occasionally, due to advanced cancer of the larynx or to other causes, it is necessary to remove by surgery the entire larynx. Since the laryngectomized has no speech at all, the laryngologist or the speech correctionist is called on for advice. There are two methods of attacking this problem: (1) The mechanical larynx. The several mechanical larynges on the market are sufficiently well known to need no description at this time. While the patient may learn to use one sufficiently well to produce understandable speech, it possesses certain definite disadvantages which I am sure every laryngologist recognizes. (2) Esophageal speech. The patient is taught to swallow air and then emit it again in a slow steady stream so as to produce a continuant tone by the vibrations of the inner edges of the esophageal constrictor. The resultant tone is then articulated in the same manner as are vocal tones. Esophageal speech also possesses disadvantages, chief of which is the difficulty with which it is learned. Its chief advantages are that changes in pitch may readily be made, that it is less conspicuous in that it requires no apparatus, and that it is more easily understood than the speech produced by the artificial larynx.

ARTICULATORY DISORDERS OF SPEECH

In the correct production of speech, there not only must be a clear tone produced at the glottis, but also this tone must be modified by the organs of articulation: the lips, mandible, tongue and velum. This modification of the laryngeal tone includes the shaping of the oral cavity to produce the proper resonance for the vowels, semi-vowels and nasals and also a partial or momentarily complete stoppage of the oral tract for the purpose of adding friction noises to the voiced consonants. A third class of sounds, the voiceless consonants, are composed only of the friction noises produced by the partial or complete stoppage of the oral tract.

(1) *Dyslalias Caused by Mouth Deformities.*—The structural mouth deformities which usually produce the greatest speech involvement are cleft palate, cleft lip, and the open bite.

(A) *Cleft Palate.*—This is probably the most serious of all articulatory disorders for it causes a greater alteration of speech sounds than any other deformity and may render speech practically unintelligible. All sounds, with the possible exception of the three nasals (m, n, and ng), are defective and the plosive sounds (p, b, t, d, k and g) are the most seriously defective, if not impossible to produce.

(B) *Cleft Lip.*—Unless associated with cleft palate, which is often the case, cleft lip affects only those sounds whose production involves the use of the upper lip (p, b, m, u, and w). The two plosives (p and b) are usually more seriously affected than the others. If the cleft extends through the maxilla and alveolar ridge, the fricatives (f, v, and th) and the sibilants (s, z, sh, and zh) may be affected also.

(C) *The Open Bite.*—The speech involvement of the open bite depends upon the size of the hiatus between the teeth and upon the degree of prognathism of the mandible or of the maxilla. The various groups of sounds involved are the bilabials (p, b, and m), the labio-dentals (f and v), and the lingua-dentals (s, z, sh, zh, and th), the group or groups affected depending upon the degree of hiatus or prognathism.

If possible, surgical repair should be made during babyhood. The customary procedure we believe is to repair a cleft palate and/or lip prior to the sixth month. Since this is not always done, many older persons submit to this type of surgical repair every year. But the possibility of eradicating the speech involvement decreases sharply as the age of the patient increases. But it is not enough simply to close the opening or elongate the palate. The muscles of the palate, especially the tensor palatini and the levator palatini, must be so arranged as to permit voluntary closure of the nasopharynx.

If the patient has already acquired speech habits when the surgical repair is made, a definite program for speech rehabilitation is essential if the patient is to make effective use of the velum now available. This program must be planned from two points of view: the strengthening of the muscles of the organ involved, and the establishing of new neurograms for each speech sound incorporating the use of that organ.

(2) *Rhinolalias Caused by Nasal Obstructions.*—In the English language there are only three nasal sounds, that is, sounds which use the nares for resonance, these being (m), (n), and (ng). For the production of these three sounds only, the nasopharynx must remain open while the oral passage must be blocked by the tongue or lips. All other sounds are produced with the nares blocked off by the raising of the velum. If the velar blockage is incomplete during the production of the non-nasal sounds, some of the breath-stream escapes through the nares and thus the voiced continuants are nasalized while the voiced plosives and voiceless sounds lose some of their sharpness and clarity. The effect of a stenosis of the nares on speech will depend upon its location and completeness as well as the age of the patient at its onset and its duration. The most frequent stenosis is that caused by hypertrophied adenoids during childhood. In "adenoid speech" the only defective sounds are the three nasals. These cannot be made and their voiced plosive analogues will be substituted for them, namely (b) for (m), (d) for (n), and (g) for (ng).

If the stenosis is located in the anterior nares the speech involvement will be quite different. The nasals will be muffled and all vowels and semi-vowels nasalized. This is due to the failure of the velum to block the nasal port. (It would be an unnecessary movement since the stenosis serves that purpose.) Thus the breath-stream, passing the open naso-pharyngeal port, sets up a cul-de-sac resonance in the nares.

If the stenosis, anterior or posterior, occurs after the patient's speech habits are well established and persists for a short time only, its removal will be followed by a brief period during which the patient will be able to readjust his speech habits. But if it persists for a considerable time, or if it occurs in childhood during the period of acquisition of speech, its removal must be followed by definite speech training, for the removal of the blockage merely transforms the speech disorder from a pathologic rhinolalia clausa to a functional rhinolalia aperta. May none who hear or read this paper ever be guilty of advising the parents of a child with long-standing nasal obstruction that the operation itself will improve the child's speech.

(3) *Dyslalias Caused by Deficiencies of Hearing.*—The effect of a hearing loss on speech is too well known to the medical profession, and especially to otolaryngologists, to require a detailed discussion. The degree of speech involvement depends upon (1) the age of the patient at the onset of the hearing loss, that is, whether or not speech habits had become firmly fixed, (2) the degree of the hearing loss, and (3) the type of hearing loss. Where either deafness to a particular range is suspected, or a general hearing loss noted, an audiogram should be taken to determine the exact hearing loss.

For most hard-of-hearing patients a hearing aid, fitted to the hearing loss of the individual, will give very satisfactory service. But the hearing aid must be "tailor made" to fit the hearing loss of the wearer.

DYSLALIAS AND RHINOLALIAS

Case 4.—B. B., an 18-year-old boy, was referred to the speech clinic by the dean of his college at the beginning of his freshman year. The patient's speech was that of a cleft palate and was hardly intelligible. The glottal stop was substituted for all plosives; all vowels and semi-vowels were excessively nasal; and the sibilants and fricatives lacked clarity. However, the palate was normal in size and showed no evidence of surgical repair. Mouth breathing and facial contours indicated hypertrophied adenoids as a child. The patient said that his tonsils had been removed when he was eleven, but not his adenoids. This was confirmed by the patient's mother who also said that "he had begun to talk that

way when he was about eight", but she said she had not noticed any speech defect prior to that time.

The diagnosis was a functional rhinolalia aperta caused by atrophy of adenoids present during the learning period of speech.

The prognosis was fairly good, depending upon the interest and cooperation of the patient.

The patient was assigned a series of drills for voluntary control of the velum, for example, blowing a whistle, and blowing up a balloon. No speech drills were given until voluntary velar control had been secured, or until he could blow up a balloon with no air escaping from his nose. Then speech drills designed to produce clear non-nasal sounds were begun. At the end of the school year his speech had improved considerably and was quite intelligible although considerable nasality persisted. His failure to remain in school prevented further training.

Case 5.—I. F., a 19-year-old girl, was referred to the speech clinic by her faculty advisor. She had a congenital cleft palate and cleft lip. An unsuccessful surgical repair was attempted at the age of five. At the age of ten, a successful operation effected a simple closure of the lip and palate. This was then followed by brief periods of speech training in the hospital speech clinic for five years. Her speech was quite intelligible although considerable nasality and the substitution of the glottal stop for plosives still persisted.

The prognosis was poor, or only fair.

Therapy, velar and lip exercises including facial massage were used along with speech drills. After a year in the speech clinic, the glottal stop substitutions had been eliminated and the nasality was considerably reduced. However, we considered that she had reached her limit of speech improvement and so dismissed her from the clinic.

Two years later her speech showed neither improvement nor regression.

Case 6.—J. B. H., a 32-year-old man, was referred to the clinic by a mutual friend. He was a minister in a near-by town who was hard-of-hearing. An audiogram showed a general hearing loss of 45 per cent, and a differential diagnosis showed it to be perception or nerve deafness. He said that his deafness had become noticeable to him about five years before and had progressively grown worse. The speech involvement was not serious, but he thought it was a considerable handicap to him in his ministry.

The prognosis is good, if the progressive deafness can be arrested.

Reading, including interpretation of poetry, story telling, and practice speeches were used as drill material to improve his type of delivery and the quality and inflections of his voice. Word and sound drills were used to improve articulation and eliminate the extraneous sound which followed the voiceless consonants. These defects were practically eliminated at the end of three months' training, at which time he secured his hearing aid. After another month of training, using the hearing aid, he was dismissed from the clinic with an eminently satisfactory speech for his profession.

At our suggestion he had placed himself under the care of a nearby otologist in an effort to preserve his hearing.

THE OTORHINOLARYNGOLOGIST AND THE SPEECH CLINIC

In a recent publication[6] Dr. Paul J. Moses presents this rather interesting question:

"Is medical phonetics an essential part of otorhinolaryngology?"

By the term "medical phonetics," Dr. Moses apparently means the diagnosis and correction of speech defects by members of the medical profession. It includes the "study of the organic as well as the functional vocal diseases and of vocal hygiene in schools." To all of Dr. Moses' conclusions we respond with a loud "Amen." If further proof of the need for a medical background for speech correction is necessary, may we point to two other significant facts: (1) the eminent success of those physicians who have specialized in the field of speech correction; and (2) the recognition, by departments of speech in universities giving a Ph.D. in speech correction, of the necessity of a background in basic medical sciences for the adequately trained speech correctionist. The author has found his training in the basic medical sciences indispensable for his work in speech correction.

CONCLUSIONS

Throughout this paper we have attempted to emphasize the following general points:

(1) There is an imperative need for close cooperation between speech correctionists and members of the medical profession, especially with the otorhinolaryngologists.

(2) In those cases requiring surgical repair of any part of the vocal tract or adjacent structures, the surgeon must consider both the pre- and post-operative speech involvement, and aim toward fashioning an organ capable of performing all normal speech functions of that organ.

(3) Any pathologic condition of the oral tract which interferes with the proper acquisition of speech, or its proper production, should be cor-

rected, by surgery if necessary, preferably prior to the acquisition of speech but otherwise as early in the life of the patient as possible.

(4) The correction of defective speech must be by one who is trained in speech pathology and its correction, which involves a sound and thorough knowledge of the anatomy, neurology and physiology of the organs of speech.

(5) For all speech defectives requiring medical attention, no speech corrective procedures should be attempted until authorized by the physician.

(6) Differential diagnoses must be made most carefully and thoroughly, and all doubtful cases must be referred to the proper medical specialist for confirmatory diagnosis.

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DISCUSSION (*Abstract*)

Dr. John J. Shea, Memphis, Tenn.—We, as laryngologists, are frequently consulted regarding the inability of a child to speak correctly. In the young child, the hearing should be thoroughly tested, for natural speech demands the ability to hear. The examination is often difficult, as it is hard to determine if the visible response of the child to the tuning forks is the result of tactile impressions or audition, especially when there exist no visible defects in either ear.

In the talking child with defective speech, I utilize three groups of words to localize the articular defects. "Pretty picture" cannot be said distinctly when there is a labial defect. "Lovely lady" requires coordination of the tongue, while words of the type of "Methodist-Episcopal" are slurred over when there is a paralysis of the soft palate.

In the adult, our part of the examination includes a thorough study of the function of the larynx. This is best carried out by indirect inspection with a mirror. If the patient gags, the administration of a simple anesthetic lozenger will help the examination. Tones are produced by the passage of air through a narrowing of the space between the vocal cords, thus causing these bands to vibrate. Pitch depends upon the tension of the cords. Inspection of the cords will show in the normal larynx a perfect coaptation without overriding. If either cord is bowed or there exists a defect, the voice will suffer. Training improves the voice, and to the laryngologist the shape and tension with which a trained singer maintains his vocal cords is distinctive. The diagnosis between functional and organic loss of voice requires repeated examinations. The ventriloquist talks by utilizing inspiration to vibrate the cords. Occasionally, this mode of speech is constantly practiced by a patient with production of a strained strange voice. A recent case of this type was given an anesthetic for better inspection of the larynx and, upon awakening, his voice was normal, but reverted back to the atypical upon regaining consciousness. The problem of retraining a patient who has surgically lost both vocal cords has been discussed. I agree thoroughly with the essayist. I have never found it necessary to train an individual who had lost one cord, though it is our custom to instruct him to turn his head towards the affected side when speaking, for this allows of better coaptation.

Roentgen therapy of cervical adenitis and thymus disease may soften the cartilaginous larynx and gives the voice an unnatural tone. These children have a stertorous breathing when asleep. The question is often asked the laryngologist: did the administration of antitoxin cause the postdiphtheritic paralysis; or would the administration of the antitoxin have prevented paralysis in a patient who had failed to obtain a satisfactory dose of antitoxin during his illness? I have seen only one instance of a permanent paralysis of the palate which followed diphtheria.

Dr. Johnson (closing).—Dr. Searcy was quite anxious that I present some speech drills, and so I selected functional nasality, one in which you would probably be very much interested. I present that for two reasons: to illustrate the type of material which we use, and also to show why it would be impossible for me to outline the corrective procedure which we should use in all cases.

Dr. Shea mentioned the difficulty of making differential diagnoses in hearing of children. Perhaps I am carrying coals to Newcastle, but I wonder if you are familiar with the technic which we have used in the speech clinic, of the conditioned reflex in making a differential diagnosis between a patient who is deaf and one who has aphasia. In these cases we use some stimulus, let us say a pinch or a pin prick, in which definite pain is experienced by the child. At the same time or shortly before we administer the pain stimulus, we use some auditory stimulus, such as striking a note on the piano or using any other noise-making mechanism that might be present. After this has been done several times with the two stimuli, the pain and auditory stimuli being given simultaneously, then we give only the auditory stimulus, and if, after repeated trials, we get a flinch from the child at the auditory stimulus without using the pain stimulus, we know that it is aphasia rather than deafness.

I regret I was unable to cover all the material here that is presented in the paper. I wanted to give you a survey of the work of the speech clinic. I wanted particularly to discuss disorders other than stuttering, for entirely too much emphasis has been placed upon stuttering both by the lay public, I think, and by speech clinicians. For example, we secured a package library from the American Medical Association on speech correction. We received a dozen articles, nine of them on stuttering, two on hearing, and one on a survey. Nasality, cleft palate, the open bite, and others were not covered. I particularly wanted to discuss those this morning.

THE TREATMENT OF IDIOPATHIC SCIATICA BY EPIDURAL INJECTION OF ALMOND OIL AND PROCAINE HYDROCHLORIDE*

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The medical anesthetist of today is not worthy of his title if he is contented to be nothing more than a gas machine technician. This specialty, which lagged far behind the advances in surgery which it made possible, has, in recent years, been given the attention it deserves and the trained anesthetist now thinks and acts for himself and is no longer the automaton of the surgeon. He is familiar with all types of anesthetics and knows how and when to use any given method. An ever-broadening field presents itself to the anesthetist who is well-grounded in neuro-anatomy and knows how to apply the various forms of nerve block, for the relief of pain is the very premise upon which the science of medicine is built.

Pain is the symptom which brings most patients to seek the aid of a physician. In most types of pain there is an underlying cause, which, when removed, relieves the pain. However, the cause of pain is not always demonstrable. Sciatic pain, of undetermined origin, is one of the most troublesome of this latter group and one in which we have found a type of nerve block to be very effective.

ETIOLOGY

In order to understand how we selected our cases for treatment, let us first divide the various types of sciatica into two groups: first, that group in which the cause of the low back pain with sciatica radiation is due to mechanical pressure on the nerve roots and is demonstrable through use of the roentgen ray.

This group includes:

(a) Lesions in the body of the fifth lumbar or first sacral vertebrae; or, in the articular facets between these vertebrae.

(b) Lesions in the sacro-iliac joints.

(c) Injuries to the intervertebral disks between the fourth and fifth lumbar vertebrae or between the fifth lumbar and first sacral vertebrae.

Second, the idiopathic group, or that group in which no definite evidence of mechanical pressure on the nerve roots can be demonstrated and the cause of the pain is unknown. Some investigators claim the pain in these cases is due to lesions in the myofascial and aponeurotic structures of the lower back. It is evident that if the sciatica is caused by lesions in these soft parts, the pain must be reflex in origin as the joints and nerve roots are not directly involved. It is this group which we have found to be amenable to the type of treatment we will here describe.

SIGNS AND SYMPTOMS

The predominant symptom in sciatica is low back pain centering over the posterior aspect of the sacro-iliac joint and radiating out into the buttocks; following the course of one or both sciatic nerves from the sacro-iliac notch to the popliteal space and spreading down the leg along the course of the peroneal nerves. From these centers it may spread in a diffuse and ill-defined way to the posterior and posterior lateral aspects of the thigh and leg, occasionally radiating to the sole and dorsum of the foot. The greater the pain the more diffuse and extensive are its radiations. When severe there is constant dull ache and tenderness along the course of the sciatic nerve and its branches. Superimposed upon this are stabbing pains brought on by unguarded motion in the lumbo-sacral spine or a sudden change in spinal fluid pressure. At times one may feel the intensity of the pain rise and fall with respiration even though one lies as motionless as possible on a firm flat surface. The pain feels most superficial on the lateral aspect of the leg, an area corresponding to the cutaneous distribution of the fifth lumbar nerve. It is in this area, too, that one most often finds hyperesthesia. The site of most intense pain is likely to vary from day to day. Physical examination will usually show a typical faulty posture with a mild scoliosis and flattened lumbar region, especially so in cases of long duration. There may be tenderness over the spinous processes and the ligaments of the lower lumbar region, over the postgluteal region and along the course of the sciatic nerve. The achilles reflexes may be diminished or absent. Depending upon the duration of the condition, there may be considerable atrophy of the calf and thigh muscles. Muscle

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fibrillations are considered as an important physical sign. Leg lifting test or the Laseque test is positive in every true case of sciatica. The angle of flexion of the thigh may vary from 0° to 30° in the leg lifting test.

TREATMENT

Various treatments have been advocated for idiopathic sciatica. To date this condition has been treated by perineural injections of the sciatic nerve, using 1 per cent procaine hydrochloride. Manipulation under an anesthetic has been used rather extensively, hoping to break up any existing adhesion that may be present about the pyriformis muscle or about the spinal exit of the sciatic nerve components. This method of treatment has given variable results. In the hands of a gentle individual very little relief will be obtained, while on the other hand if the manipulator is rough, considerable damage may result. The sciatic nerve may be traumatized to such an extent that a paralysis of the lower extremity results. Sacral injections of 1 per cent procaine hydrochloride and normal saline has produced relief in some cases, but this relief has usually been only temporary.

ANATOMY

Before describing the technic used in the epidural injection, a brief review of the anatomy of the epidural space is in order. The space extends the entire length of the spinal canal from the foramen magnum to the coccyx beginning above where the thick cranial dura splits at the foramen magnum into its two functionally different layers. The external layer lines the spinal canal as the periosteum and the thick fibrous covering of the ligaments of the spine. In the region of the coccyx it becomes continuous with the periosteum of this bone. The anterior and posterior longitudinal ligaments are thick parts of this layer. The inner layer becomes the true spinal dura and covers the cord as a tubular sac. Between these two layers is a definite space which contains a semiliquid fat and a venous plexus. The lower end of this space extends dorsalward to the sacral hiatus. The space is open latterly through the intervertebral foraminae.

TECHNIC

Prior to the injection of the 2 per cent procaine base in almond oil in the epidural space the patient is given no preliminary medication, such as narcotics or sedatives. Many of the cases were referred directly from the outpatient department to the operating room and then admitted to the hospital following the treatment. The patient is placed in a sitting position on the operating table, the shoulders and hips in a straight line, avoiding any possible tilting of the spine. The back is then cleansed with an antiseptic solution. Throughout the entire procedure the patient is kept in an erect position. The second lumbar interspace is identified and 2 c. c. of 1 per cent procaine is injected into the skin and subcutaneous tissues. Through this anesthetized area the special epidural needle with its stop attachment is inserted into the interspace until it is well engaged in the intraspinous ligament. The stylet is removed and the glass indicator attached to the needle. Indicating fluid which may be either normal saline solution, procaine or methylene blue is then injected into the glass indicator. The needle is then slowly inserted and the instant the point enters the epidural space the fluid in the glass indicator will be aspirated due to the negative pressure in the epidural space.

The patient's back should not be arched until everything is in readiness for the puncture, for flexion of the vertebral column in advance will decrease the existing negative pressure in the space by producing an inflow of blood and congesting the peridural venous plexus. With the engorgement of these vessels the likelihood of injuring them becomes greater.

As soon as the space has been localized the safety clasp is pressed tightly against the skin and the glass indicator removed. With the needle in the epidural space 20 c. c. of 2 per cent procaine base in almond oil is injected in two 10 c. c. portions. Following each 10 c. c. portion an attempt to aspirate the injected fluid is made. Fluid injected into the epidural space cannot be aspirated.

After this procedure, the patient is placed in the supine position and 3 to 5 minutes' rest is allowed. The affected extremity is then flexed on the hip to determine whether or not the block has been effective.

After this leg lifting test the patient is sent to the ward for 24 hours' observation. During this time the patient remains in bed and no weight-bearing is permitted.

RESULTS AND DISCUSSION

In this series of 42 cases the duration of the sciatic pain ranged from one month to seven years. The ages of the patients varied from

24 to 71 years. The males were predominant: 27 males and 15 females. There were 26 white patients and 16 colored. In the 42 cases 41, or 97 per cent, secured immediate relief from the injection of 2 per cent procaine in almond oil. Permanent relief over a period of 20 to 36 months without any recurrence of pain was present in 38 cases, or 90.5 per cent. Re-injection was done in 4 cases, this procedure being performed within 72 hours after the first injection. In 4 cases, or 9.5 per cent of the cases, poor results were obtained; that is, relief lasting from two to four weeks.

To demonstrate the diffusion of solution injected into the epidural space, iodized oil instead of almond oil was used in 10 cases and serial roentgen rays were taken immediately after injection, and at 15 minutes, 30 minutes and two-hour intervals. In all of these cases it was noted that the diffusion was more rapid on the affected side than on the non-affected side. In one case the entire make-up of the sciatic nerve with its components was visualized on the affected side with very little diffusion on the non-affected side. The exact cause of this phenomenon has not as yet been explained.

In none of the cases in this series was there any form of reaction from the solution injected nor was there any evidence of headaches, paralysis or damage of any sort to the nerve roots, either as an immediate or latent complication.

CONCLUSION

This method of treatment has given very gratifying results in those cases of sciatica in which there is no demonstrable mechanical cause. Our results have convinced us that this method of therapy should be used for relief of pain before other more radical procedures are attempted.

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DISCUSSION (*Abstract*)

Dr. P. K. Knoefel, Louisville, Ky.—I should like to say that this is not the same kind of local anesthesia that you are familiar with. With aqueous solution of a local anesthetic, you think that when the nerve is bathed in a certain concentration of it then the nerve fails to conduct impulses. When the concentration of the anesthetic falls, then the nerve recovers and it again conducts impulses. With this sort of solution in oil, it is probable that when the interference with function lasts for more than two hours, you have not a local anesthesia, a block, but a degeneration of the nerve fibers. In experimental animals, it has been found that when these oil mixtures produce an anesthesia lasting for a long time, histologic examination shows degeneration of nerve fibers. Whether or not this is bad or good I am not capable of saying but I think you should realize that this is a different sort of phenomenon from nerve block with aqueous solution.

Dr. S. E. Williams, Chippewa Falls, Wis.—How long do these anesthesias last as an average?

Dr. S. A. Peoples, Tuscaloosa, Ala.—The motor response of the nerve is apparently intact, but I would like to ask if there are any sensory changes in the skin that can be detected, say, by neurological examination, and if these are transient or more or less permanent. It would be difficult to explain the action of this solution on the nerves if it does not affect either their sensory or motor fibers.

Dr. Hope Snider Ross, Enid, Okla.—Has this procedure been tried for carcinoma or anything other than sciatica?

Dr. Odom (closing).—We have had no evidence of nerve damage in any of the cases in which this procedure was used, and we have checked all cases for evidence of this complication.

It is our feeling that the relief experienced by these patients cannot be explained on the basis of a prolonged nerve block. If this were true it would be reasonable to suppose that nerve degeneration might take place, for some of these cases have been relieved now for over three years.

Since the underlying cause of sciatic pain is unknown it is our theory that the relief is due to an interruption of a pain reflex for a long enough period of time for function to be restored and with the return of normal function the reflex is abolished.

Dr. Williams inquired as to the duration of anesthesia. When using the 2 per cent procaine in almond oil a complete block does not result. The patient is always able to move the lower extremities. There usually is some numbness of the skin over the lower extremities which disappears within 24 hours.

We have used a 2 per cent aqueous solution of procaine for anesthesia in over 500 operative procedures and in those cases the block lasted from an hour to an hour and fifteen minutes.

Dr. Ross asked if we have used this procedure for relief of pain in other conditions. We have injected a number of cases of inoperable carcinoma getting results varying from complete relief in a few to no results in others. It is our feeling that these irregular results are intimately associated with the cause of the pain. That is, if the pain is caused by mechanical pressure due to degeneration of a vertebra or to pressure on a nerve root or roots by a carcinomatous growth this type of procedure will be of little value. However, in all cases of inoperable pelvic carcinomas with pain we feel this procedure should be tried before resorting to a subarachnoid block with alcohol or a cordotomy. We have also been able to relieve pain in two cases of aortic aneurysm which were not relieved by morphine. The injection in these cases was carried out between the seventh cervical and first thoracic vertebrae.

TREATMENT OF FRACTURES OF THE LOWER THIRD OF THE HUMERUS*

By F. ADELBERT HOSHALL, M.D.
Charleston, South Carolina

This narrator, after analyzing the hospital records, the outpatient clinic records and his private office records of 204 cases of fractures of the lower one-third of the humerus, is convinced that skeletal traction with the shoulder spica in his hands is the method of choice in treating the distal third of the shaft, supracondylar and T fractures. He is equally convinced that displaced fragments of either the medial or lateral condyles and epicondyles require open reduction, wiring, pinning or suturing the displaced fragment and holding in a cast in the position of greatest immobility.

The supracondylar was most frequently encountered and comprised 39.7 per cent of our cases; the intercondylar, 19 per cent; medial condylar, 16 per cent; the lower third of the shaft, 15 per cent; the lateral condylar, 10.3 per cent.

Children were in the majority in the supracondylar and lateral condylar fractures, while adults led in the list of the other three groups. There were 27 cases of lower shaft fracture:

Fracture	No. Cases
Supracondylar	82
Intercondylar	42
Medial condylar	31
Lateral condylar	22

There were only four adults with supracondylar fractures. The oldest was 78, the other three were in their early twenties. The remaining were children under 13 years of age. Three were 3 years of age and the average age was 9.2 years. The average age of the lower third of the shaft was 29 years; the average age of the intercondylar, 31 years; and the youngest in this group was 4 years of age. The average age for medial condylar was 15 years of age with the oldest 55 and the youngest 9. The average age in the lateral condylar group was 9 years of age with only one adult 68 years of age and the youngest 4 years of age. Open reduction was done on 15 of the 204 cases, or 7.3 per cent, and all of these cases were fractures of the medial or lateral condylar with one exception, which was an intercondylar, or T. In this case, a Steinmann pin in the olecranon was used for traction. A Kirschmer wire was then used to hold the fragments together, with a Steinmann pin in the middle one-third of the humerus. A shoulder spica could not be used, as this patient was very obese. Steinmann pins were used in 45 of the 204 cases, or a total of 22 per cent. Plaster casts alone were used in 70.7 per cent, or 144 cases. Approximately 15 per cent of these required manipulation and immobilization.

In supracondylar, medial condylar, lateral condylar and fractures of the distal one-third of the shaft without displacement, an arm cast was used from the axilla to the base of the fingers with the elbow at right angles and the forearm in the position which would remove all tension from the fracture.

Forty-eight of the 144 cases were manipulated under general anesthesia. The supracondylar fractures were placed in shoulder spicas. Three supracondylar fractures were treated by the elbow acutely flexed and held with adhesive. These three were the only exceptions to the narrator's rule of immobilizing supracondylar fractures with displacement in shoulder spicas. The fracture dislocations and fractures of one or the other condyles were placed in arm casts, and if the check-up roentgenogram showed satisfactory reduction, they were left in arm casts.

In the five open reductions of the lateral condyle, the fracture was reduced and sutured in place, except in a 68-year-old woman in whom the fragment from the capitellum was removed. In all cases, arm casts were used from the axilla to the tips of the fingers with the elbow at a right angle. In the forearm there was full supination. One of these cases, as well as another which did not require open reduction, developed a noticeable valgus deformity. Fractures of the medial condyle with displacement require open reduction and immobilization of the epicondyle as the mechanics of a fractured medial epicondyle allows for dislocation and lateral instability of the elbow joint. The epicondyle was sutured in place with stainless steel wire, arm cast from the axilla to the tips of the fingers with the elbow at a right angle and forearm in full pronation.

In your narrator's experience, a Steinmann pin for skeletal traction will satisfactorily reduce and definitely decrease the number of open operations in fractures of the lower third of the shaft,

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intercondylar or T fractures and supracondylar. It is a very simple matter to insert the pin, apply a shoulder spica and incorporate the pin in the cast. It was necessary in a number of these cases to incorporate a Hoke traction apparatus after the dorsum of the forearm and the elbow of the cast above the pin had been removed. Skeletal traction is applied through the pin with the cast against the body for counter traction. The forearm is held loosely against the flexor part of the cast with ACE bandage. In the 27 cases of the lower end of the shaft two were pathologic fractures. One was a multilocular cyst.

In this case, a Steinmann pin and shoulder spica were used, and firm bony union resulted. Six months later there was complete range of motion of shoulder and elbow. The other case was a metastatic carcinoma which involved the entire lower third of the humerus. This case was immobilized in a plaster velpeau with the sole purpose of preventing motion at the fracture site. The patient, a 70-year-old white woman, died five months later. The process had enlarged and there was no bony union.

There were eighteen compound fractures. One was amputated above the elbow; two were fused at the time of operation; one developed nonunion at the site of the fractured olecranon and fusion of the olecranon to the medial condyle; one had 25 degrees flexion and extension; three, fibrous ankylosis; the remaining ten had 40-50 degrees motion. Stiff forearms resulted in four of the eighteen cases, that is, ankylosis of the radio-humeral articulation.

Poor results were obtained in five of the supracondylar fractures. The 78-year-old patient developed a stiff elbow clinically with the forearm fixed in mid-position. Four developed a bony block on flexion as the result of failure to fully reduce the fracture. In one case, after two years, and in two cases after three years, the block has disappeared. The recent x-rays showed deformity growing away from the original fracture site. Two of the medial condylar fractures have developed a definite varus deformity. Four of the lateral condylar fractures have a valgus deformity. One and possibly two of these cases will require an epiphyseal block on the medial side.

SUMMARY

(1) All supracondylar fractures with displacement should be immobilized in a shoulder spica, as the sagging of an arm cast in many cases will cause posterior displacement after reduction.

(2) Conservative treatment of fractures of the distal third of the shaft, supracondylar and T or intercondylar, by means of the Steinmann pin and shoulder spica, gives gratifying results.

(3) If a pin through the olecranon does not give a satisfactory result, it will not interfere with a further operative procedure.

(4) All displaced medial and lateral condylar fractures require open reduction.

DISCUSSION (*Abstract*)

Dr. J. Warren White, Greenville, S. C.—Dr. Hoshall said that displaced fractures of the condyles should always be openly reduced. I think he meant that if they could not be reduced otherwise, that should be done. I do not think that they should be reduced without a trial first by other means.

Another reason for early reduction is, I think, that they are very prone to nonunion. The synovial fluid, when it seeps in between the fragments in these joint fractures, does stimulate or produce or tend to produce a nonunion, and the fragment has to be replaced later on.

I do not use a spica in all lower third fractures. There has been a good deal of discussion among us at this meeting about hanging casts. I do not see why the same idea could not be applied to these as in the upper fractures. However, when skeletal traction is used, to get real traction you have to have counter-traction, and there, of course you have to have a shoulder spica.

Perhaps I do not see so many serious fractures such as Dr. Hoshall has described in the lower humerus, because I have occasion to open very few of them. I think it is well to use considerable force when you apply skeletal traction. Many will come down in place if you hold them and apply skeletal traction as though you meant it.

The control and correction of cubitus varus and valgus can be accomplished satisfactorily by the employment of sufficient extreme pronation or supination of the forearm. This I have found to be a most useful maneuver. There are conditions relative to treatment that Dr. Hoshall has not mentioned; and probably did not mention purposely. I cannot resist the opportunity of mentioning them here because I see them frequently. One is the development of Volkmann's contracture. It is important when you have a relatively insensible pallid arm, completely to decompress the deeper structures, practically making a compound fracture. Be sure that you do not have an inflated muscle group that is restricting return circulation.

I see so many cases of Volkmann's ischemic paralysis that I cannot help mentioning it.

The other condition, if you will call it that, is the slow return of motion in these elbows. Watson Jones in his recent publication has stressed the use of conservatism in "pump-handling" these elbows. Let the individual exercise his elbow, but let him exercise it himself; do not let anybody else do it. You can keep up a traumatic arthritis by unnecessary "pump-

handling" or manipulation. If you would just let it go, it would be much more satisfactory, and save frequently a tremendous amount of trouble for all concerned.

That was brought to my attention in a rather serious fracture in a youngster who came down with whooping cough, followed by pneumonia. No treatment was given that child at all, and he recovered with perfect motion.

Dr. C. R. Rountree, Oklahoma City, Okla.—I agree with Dr. Hoshall and also with Dr. White that we get just as good, and perhaps better results in T fractures of the elbow joint by proper application of traction methods, as by extensive open reduction with the introduction of a great deal of foreign material.

Another point, which should be stressed, is that whenever we have isolated fractures of the humeral condyles, we must expect in some cases, at least, disturbances in growth of the epiphyseal centers about the joint, and the various deformities which develop at the elbow.

This was brought to my attention forcibly in a case where a fracture of the lateral condyle was nailed with an ordinary soft iron nail. The lateral condyle completely absorbed, leaving the nail in place without anything around it.

Whether or not the poor quality of the metal used had anything to do with the absorption, I do not know, but certainly these complications can and do develop. Since that experience I have discarded the use of ordinary wire nails and have substituted some form of stainless steel.

Dr. F. Walter Carruthers, Little Rock, Ark.—I should like to stress a point in these cases that has already been brought out. Dr. Hugh Smith showed it in nonunions that occur in the olecranon. I noticed in both of those cases they drilled a hole in the proximal fragment of the olecranon.

You can avoid that if you pass a wire directly through the triceps tendon rather than through the small-bone area of the proximal end of the ulna.

Then flex the arm and tighten the wire strongly. When that comes down, you do not have what occurs when you get flexion. Work it tight and very actively at the time you wire, and let the pull be on the triceps tendon rather than the small fragments.

That is also true in the patella. If you pass a circular wire around the patella, you should put it through the tendon rather than through the bone, because it is a contraction of that tendon that pulls the fragment away from the apposition that you make originally.

Dr. Hoshall (closing).—In this series I had only cases in which there was so much swelling about the elbow and forearm that I found that release of the tension by incision of the skin bicipital fascia and splitting of the muscle fibers might relieve the swelling. Several small incisions of the forearm were made through skin, and deep fascia, and the muscle fibers were split. This is the only patient in which we were alarmed at the possibility of his developing Volkmann's contracture. Whether the incision of the skin alone would have been sufficient to relieve the tension I do not know. It is generally taught in medical schools that the maintenance of good circulation is always more important than immediate reduction of fracture, particularly about the elbow. It may be impossible to reduce the fracture because of the swelling.

FRACTURE OF THE HIP*

THE PRESENT STATUS OF ITS TREATMENT

By RICHARD T. HUDSON, M.D.
Louisville, Kentucky

Fracture of the hip is still a serious injury, and will always carry a certain per cent mortality, because of the age and poor physical condition of many of these patients, but more progress has been made in the solution of this difficult problem in the past ten years than in all the history of medicine previous to that time.

At the annual meeting of the American Academy of Orthopaedic Surgeons at Memphis, Tennessee, January 19, 1939, a preliminary report on the treatment of fractures of the neck of the femur by internal fixation was given by the Secretary, Dr. H. Earle Conwell. This was a review of 1,485 cases reported by 100 orthopedic surgeons and clinics.

I am a firm believer in the methods of internal fixation of these fractures, and feel sure that a much higher per cent of good functional results has been thus obtained than by any closed method. I feel that any patient who is not moribund, or who has any chance to live, is justified in having this operation. It relieves the intense pain and offers many of them their only chance to recover.

I have purposely chosen the comprehensive term, hip, to include both intracapsular or fractures of the neck of the femur, and extracapsular or intertrochanteric fractures. A very careful distinction should be made between these two types of fractures by the physician, because the prognosis and sometimes the treatment are very different, and these points should be explained to the patient and relatives.

A certain per cent of fractures of the neck of

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the femur will fail to unite regardless of the surgeon or the type of treatment used, while it is very rare to see nonunion of intertrochanteric fractures, whatever method of treatment has been employed.

The technic of internal fixation has been perfected to such a degree now that there is really very little operative risk and the present popularity of this method is due to the progress made by instrument manufacturers in supplying us with stainless steel and vitallium, metals which are practically unchanged by the body tissues.

Internal fixation is not a new principle, as it was employed at least in 1903 and a good many times afterward by certain surgeons, but often failed because of the fixative material or the technic used. With the perfection of spinal and local anesthesia and the advent of shockproof x-ray apparatus, operative treatment has become very common.

From 1900 to 1925, the time-honored and tested abduction cast method of Royal Whitman was fairly successful and eminently superior to any previous form of treatment of fracture of the hip. This is not an easy treatment to apply correctly and no doubt many failures resulted from inability of surgeons to comprehend and apply the principles as Whitman did himself. I worked with Whitman and was an ardent advocate of his treatment at one time, but my results were so disappointing that now I never apply a cast to any hip fracture if it can be avoided.

Dr. M. N. Smith-Petersen,[1] of Boston, probably deserves more credit for stimulating interest in, and developing methods of, internal fixation of fractures of the hip than anybody else in America. He invented a special three-flanged, stainless steel nail that he inserted into fractures of the neck of the femur by open operation. He operated upon his first cases in 1925, but did not publish a report of his cases until 1931. His results were so encouraging that his methods were used and modified by many other surgeons.

Johansson,[2] of Sweden, introduced a cannulated nail that is inserted over a Kirschner wire or small pin, which is checked with x-ray control. This led to better and simpler technic and the operation of "blind" nailing. This method has since been widely used by many surgeons with very satisfactory results.

Dr. Austin Moore,[3] in 1934, described a method of fixation by using three stainless steel threaded pins to hold the fragments. Since then he has modified this technic, using four pins inserted parallel.

There have been other methods described using various types of screws, pins and bolts, producing no doubt good results in the hands of the originators. I have used several methods and prefer the four-pin method of Dr. Moore. These pins can be used in either fractures of the neck of the femur or in the intertrochanteric variety with equal facility and are the least shocking and upsetting to the patient, which is a big item in many cases. I shall not go into the detailed technic of the operation in this paper. Contrary to what one would suppose, these pins when properly inserted hold the fragments very firmly in apposition and prevent twisting, shearing or lateral displacement. No type of external fixation is used after the pins are inserted.

The operation is usually performed under low spinal anesthesia and causes very little shock, but the proper insertion of the pins, in the vernacular of the street, "isn't easy."

In a paper of this kind probably a word should be said about the treatment of nonunion of fracture of the neck of the femur. Here again remarkable strides have been made in an operation to eliminate pain and produce a relatively good, functional hip. The operation I refer to is the McMurray[4] subtrochanteric osteotomy of the femur. This can be performed in a few minutes under spinal anesthesia, with little shock to the patient and it produces a high per cent of good results. It is necessary to apply a cast for 8-10 weeks following operation, and it is remarkable to me that usually the head, greater trochanter and shaft of the femur unite to produce a stable, painless joint with a fair amount of motion. This operation in my opinion is far superior to any type of reconstruction or fusion of the hip joint.

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PILONIDAL SINUS*

A REVIEW OF ITS LITERATURE AND A REPORT OF 87 CASES

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NOMENCLATURE

Pilonidal sinus has appeared in the literature under an assortment of names, which include mainly: sacral dermoid, sacrococcygeal fistula, coccygeal fistula, coccygeal dermoid, coccygeal sinus, postanal fistula, and congenital sinus of the sacrococcygeal region. The majority of authors ignore the term pilonidal "cyst." No one has as yet reported true cysts in this area other than verified dermoid cysts. Hodges[1] coined the word pilonidal in 1880, deriving it from Latin words pilus, meaning hair, and nidus, meaning nest: a very good coinage, as it is found often to be a "nest of hair." Newell,[2] of Birmingham, England, writing in the *British Journal of Surgery* as late as 1933, stated it should be called "congenital sinus in the sacrococcygeal region." However, his own paper is entitled "Coccygeal Sinus."

SIGNS AND SYMPTOMS

Pilonidal sinus is easily overlooked by the average good physician, as it is usually hidden, wholly or partially, in the fold between the buttocks. In a well nourished individual, the natal fold is very deep and narrow. Another good reason for its apparently difficult diagnosis is the fact that the lesion first causes trouble after adolescence, and most often, in rather hairy individuals. The curly hair of the sacrococcygeal region may hide it from view entirely when search is made for it, even with the buttocks spread by the physician's hands. In patients appearing at the office or clinic for other conditions it will almost invariably be overlooked, because of this comparative inaccessibility of the region to be searched for the lesion. These factors may have had much to do with apparent rather than real rarity of the lesion. In conversing with many pediatricians, concerning pilonidal sinus or even postanal dimple, the majority of them admit that they have never seen one in a baby!

In brief, pilonidal sinus is found usually in the mid-line, in the region of the sacrococcygeal joint (*Fig. 1*). Its only evidence, when not acutely inflamed, nor draining, is a small orifice in the skin, 1 to 5 mm. in diameter. This orifice is most often found in the characteristic depression, the postanal dimple, from 7 to 10 cm. directly cephalad to the anus. The area including postanal dimple is always devoid of hair, even in an extremely hairy individual. This area is called Oehlecker's "bald spot"[3] (*Fig. 2*). The postanal dimple, when present, is always over the sacrococcygeal joint. Its presence should immediately suggest the possibility that a pilonidal sinus may be found. The orifice itself is characteristic in that it is smooth, shiny and skin-lined. Granulation tissue is not detected. Sometimes, two, three, or even five or six of these same orifices (*Fig. 5*) may be seen in the same patient and almost always in the mid-line, from 3 to 10 mm. apart. Occasionally, a small tuft of hair will be found pushing its way up through one or more of these orifices (*Fig. 2*). A fine probe can frequently be passed, painlessly, for a variable distance, cephalically or ventrally, into the main orifice. The probe may be passed upward from 2 to 20 mm.

Inflammatory signs may distort the picture to a bizarre degree, from a mild and early inflammation of a single sinus tract on the left (*Fig. 3*), to the presence of several inflamed false openings or fistulous tracts, which are ragged and lined with granulations (*Fig. 4*). They are not found in the mid-line as a rule. They are most often present to the left of the mid-line, 1 to 3 cm. cephalad to the congenital orifice. Often a small, tender, fixed, reddish-purple mass, 1 to 2 cm. in diameter is seen and felt, indicating the position of the infected *cul-de-sac* of the sinus tract.

The history of the majority of patients is characteristic of the disease. A composite one would run as follows:

"Several years ago, while I was in high school, I had some pain in the lower part of my back, and I went to my doctor, who opened an abscess there and I obtained immediate relief. It drained a while, and then healed. The pain, along with a swelling between my buttocks, recurred about six months later. This time the doctor opened the abscess again, and curetted the cavity, too. A year ago—I am now 20 years old—the doctor incised and drained another abscess to the right of the last one and it drained for several weeks. Three months ago it began draining all by itself. I had no pain before it began to drain this time. It has drained every day and doesn't seem to stop as it has previously. The drainage is foul smelling, and dirty yellow in color. It often soils my outer clothing. I

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*Read in Section on Surgery, Southern Medical Association, Thirty-Fourth Annual Meeting, Louisville, Kentucky, November 12-15, 1940.

*From the Division of General Surgery, University of Tennessee College of Medicine, and the John Gaston and Baptist Memorial Hospitals, Memphis.

cannot walk very far without pain; I cannot sit down very long without pain; and any undue strain, as lifting, causes severe pains all over my lower back and buttocks."

Inspection of this "composite patient's" lesion usually reveals several stellate and linear scars in the region of the postanal dimple, evidences of previous attempts at relief, and a small draining fistula off to one side of the mid-line, usually the left. Yet, right in the center of the postanal dimple there lies, undisturbed by former efforts at surgery, the tell-tale characteristic orifice. There is still some redness, induration and tenderness about, for inflammation leaves this area rather slowly, due to the contiguous heavily infected perineum. Pressure over any slight bulge or fluctuant area may cause pus to exude from the congenital orifice, or from a subcutaneously connected acquired fistulous opening. Slight rises in temperature are frequent. Leukocytosis is present during the acute stages of the disease. Differential diagnosis from fistula-in-ano, fissure, perianal abscess and hemorrhoids is obvious after even superficial physical examination.

TREATMENT

As Stone states:

"The diagnosis once established, the problem of treatment is easily solved. It consists in complete excision of the whole tract with its entire wall."

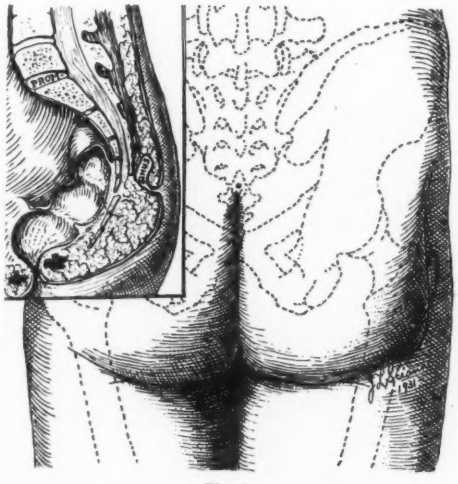

Fig. 1

Large drawing shows relationship of external marking of pilonidal sinus to the bony pelvic girdle. Large dot in center of sacrococcygeal foramen represents usual location of the congenital sinus. Insert shows relationship of pilonidal sinus to anus, rectum and sacrococcygeal foramen.

Radical excision is advocated by practically all who have written on the subject since the beginning of the Stone age. Stone,[4] Masson,[5] Gant,[6] Jones,[7] Anderson,[8] Mueller,[9] Morter,[10] Eisberg,[11] Strauss,[12] Dulligan,[13] La Rochell,[14] West,[15] Colp,[16] Cattell and Stoller,[17] Bearse,[18] Weeder,[19] Weinstein,[20] Newell,[2] Ottenheimer,[21] Breidenbach and Wilson,[22] Gage,[23] Rogers and Hall,[24] Block and Greene,[25] and Zieman[26] are among those who remove the pathologic area en masse by one method or another.

A few advocates of the use of sclerosing solutions are Cutler and Zollinger,[27] Biegeleisen[28] and Block and Greene[25]. In recurrences, sclerosing solutions and roentgen therapy as reported by Smith[29] and Turell,[30] have been used by some.

Maillard[31] reported a case cured by galvanic current. Crookall[32] advises scalping the skin over the sclerosed area, then cleaning out the tract, following this by packing with pure silver nitrate. This silver nitrate pack is left in place for several days, and when it is removed, the

Fig. 2

A typical picture of pilonidal sinus. The ovally outlined area reveals Oehlecker's bald spot. a reveals the sinus with several hairs protruding.

entire lining membrane of the tract should come away. He does not say what else may come away with it.

Numerous valuable adjuncts have been suggested in preoperative preparation and preliminary injections to aid in outlining the sac and its tracts. Most writers advocate thorough cleansing of the lower bowel and careful preparation of the operative area. Gage[23] recommends repeated daily injections of methylene blue in order better to outline the tracts. Brams[33] recommends injection of iodized oil and x-ray films, lateral and antero-posterior, for the same purpose. Wayne Babcock[34] injects zinc chloride to sterilize the cavity, then methylene blue, followed by radical excision. Later, he performs secondary closure to hasten healing. Most conservative surgeons advocate block dissection, with or without dye injections, then packing with either plain gauze, iodoform gauze, vaseline gauze, or gauze soaked in a great variety of antiseptics, or bactericides.

Many good surgeons advocate primary closure in selected cases, where little or no evident inflammation is present. Here the more popular procedures include Lahey's sliding graft,[35] Colp's mid-line closure,[16] or Gage's stellate closure,[23] without drainage. They report primary healing in the majority of these selected cases. Bearse[18] recommends the use of wide adhesive strips from the sides of the buttocks to the operating table, to aid in the spread of the buttocks for better approach (*Fig. 15*).

Though recurrences are bound to occur even in the most careful surgeon's hands, it is readily agreed that many of the so-called recurrences are due to delayed healing caused by faulty operative closure, incomplete hemostasis, poor packing, negligent follow-up, careless postoperative care, as well as carelessness, and wilful neglect upon the part of the patient in cleanliness and dressing. Rogers and Hall[24] have presented an admirable paper treating these phases of operative and postoperative care.

REPORT OF 87 CASES

The records of 87 cases of pilonidal sinus have been reviewed by the writer. Forty-three cases were obtained from the record library of the John Gaston Hospital, the teaching hospital of the University of Tennessee. Forty-four cases were taken from the private files of Dr. J. L. McGehee, and the writer, senior and junior associates in surgery, including the charity service at the Baptist Memorial Hospital, which is also a teaching hospital of the University of Tennessee.

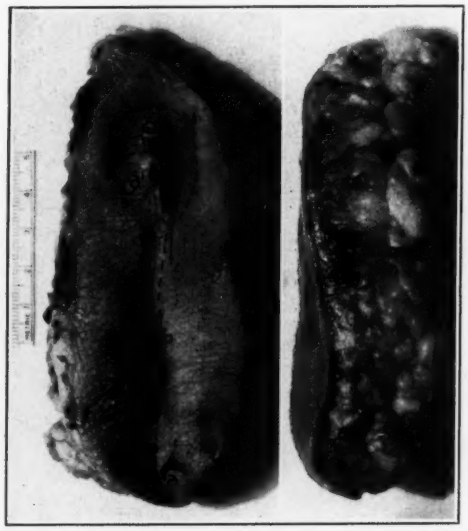

Fig. 3

A common type of pathologic condition encountered. a, congenital sinus. b, sinus tract. a1, acquired sinus. c, *cul-de-sac* (suppurating).

Fig. 4

A complicated picture of pilonidal sinus infection. a, a, two congenital sinuses. b, sinus tract. c, *cul-de-sac* (suppurative). a1, a1, acquired sinuses. d, d, abscesses.

(a) *Age.*—The curve in *Fig. 10* reveals that the majority of patients presented themselves between the ages of 16 and 26 (46 per cent). Two negro male babies were seen at the ages of four and twenty months (*Fig. 11*). Thirty-nine of the 87 cases presented themselves before the twenty-second year (44.8 per cent). The majority of the patients past their twenty-first year had symptoms of the disease from six months to 20 years. No doubt many people go through life with a pilonidal sinus which gives rise to no symptoms, yet in this group of 87 patients, only two were admitted in infancy, and only one patient's parents noted the defect during infancy. In routine examination three symptomless pilonidal sinuses have been discovered in the past five years, in private practice.

(b) *Sex.*—There were 65 males and 22 females in the series, a ratio of approximately 3 to 1. Other series vary from 3 to 1 to 10 to 1, the males always predominating. The only exception is Newell's series,[2] who in a general surgical practice, reports 11 cases in women, out of 11 cases reported, all seen between 1925 and 1933. Breidenbach and Wilson[22] suggest that the discrepancy might not be due to the evidently fewer lesions among women, but that the much more physically active male is subjected to trauma in the involved area more often.

Fig. 5

All sinuses and their surrounding tissues excised and routinely sectioned as shown here: one section through the sinus tract (b) and four through the *cul-de-sac* (c). Five microscopic sections are made routinely at approximately the same sites.

(c) *Familial Tendency.*—In three instances, all in private patients, two brothers had pilonidal sinuses. In one of these instances the father also had a pilonidal sinus (*Fig. 12*). (Compare Stone,[4] page 412). Great difficulty has been experienced in getting other members of the families, where one member had a pilonidal sinus, to subject themselves to examination. Many were frank to admit they feared "you might find one!" Much philosophy could be stimulated by dwelling here a moment. Associated congenital anomalies were not found.[22]

(d) *Race.*—There were eight Negroes in the series, four males and four females (*Fig. 13*). The territory surrounding Memphis has a populous Negro settlement. Within a radius of 100 miles of Memphis, and including Memphis, there is, upon rough but conservative estimate, a Negro population of 30 to 40 per cent of the total population. Saleeby and McCarthy[36] reported a case of pilonidal sinus in a Negro from the Philadelphia General Hospital, as they considered it a rarity. From Bellevue Hospital,

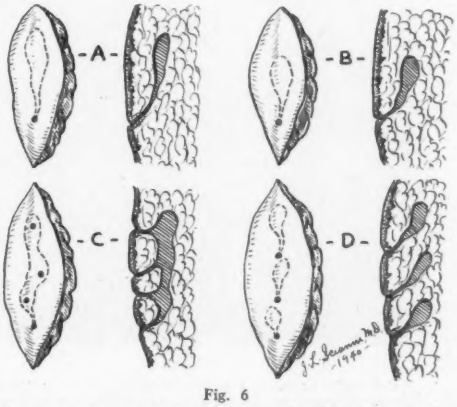

Fig. 6

The more common types of gross pilonidal sinus structure. (a) The most common type encountered, with one natural sinus, a long tract, and a well-developed *cul-de-sac*. (b) One natural sinus and a short tract with a large *cul-de-sac*. (c) Four natural sinuses connected with one common *cul-de-sac*. (d) Three "independent" pilonidal sinuses in one specimen.

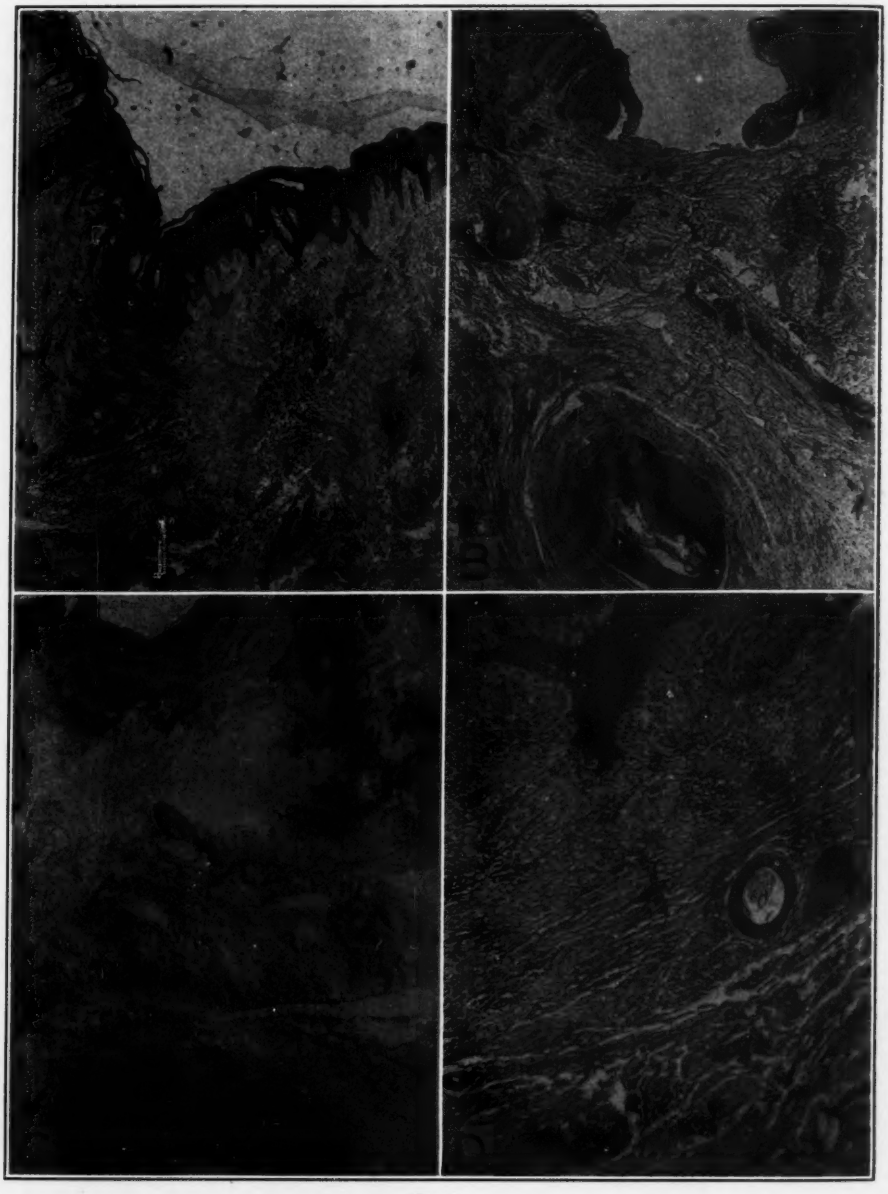

Fig. 7

Serial sections through a small and grossly uninfected pilonidal sinus. (a) Microscopic section through the congenital sinus. It shows the beginning of the epithelially-lined tract as well as the characteristic trough-like depression of the postanal dimple (x200). (b) Section through the tract one centimeter cephalad to (a), showing the structure of the tract. It is situated approximately one cm. below the skin at this point. There is no evidence of infection. The tract is lined with stratified squamous epithelium, while the lumen is filled with the debris of desquamation. There is a hair follicle in cross section in the upper left hand corner for comparison (x200). (c) Section through tract three centimeters cephalad to (a), showing the tract now almost two cm. from the skin surface. There is still no evidence of infection (x150). (d) Section four and one-half centimeters from (a), showing epithelial end of tract, which has veered toward the left gluteus maximus muscle, shown in right lower corner. Numerous small round cells infiltrate the tissues surrounding the terminus. Note the two hair follicles (right center) and sweat gland (left lower corner). This section lies two cm., approximately, from the skin surface (x300).

New York City, in a series of 288 cases, Breidenbach and Wilson[22] reported four cases in Negroes.

(e) *Malignancy.*—Malignancy in a pilonidal sinus has not appeared in the literature up to the present. However, a patient, 55, seen in consultation with Dr. J. J. McCaughan, March 20, 1940, at the Baptist Memorial Hospital is presented for consideration (*Fig. 14*).

Mr. P. E. F., aged 55, Case 283828, was admitted to the hospital, complaining of a mass in the sacrococcygeal region. About 20 years before he had noticed a draining sinus just above the tail bone. Its discharge was foul smelling, and continuously soiled his clothes. As he suffered no pain he did not consult a physician. The sinus continued to discharge throughout the years. He has never had any pain or bleeding from his rectum. About one year previous to admission to the hospital, the sinus became larger and began to spread over the area of his back between his buttocks. Pain and inability to work forced him to come to Dr. McCaughan for relief.

The local lesion is confined to the sacrococcygeal region. There is absolutely no anal nor proctologic involvement. It is a large, heaped up, irregular cauliflower like greyish-pink ulceration with heaped up edges and a very irregular base. It is extremely foul smelling. It measures 30 cm. across its greatest width, and 24 cm. across its greatest length. The inguinal glands are palpable, small and soft. X-ray of the lower spine, sacrum and coccyx is negative. "Biopsy reveals adenocarcinoma, Grade I, with colloid degeneration, of the sweat gland type" (Dr. N. E. Leake, pathologist at the Baptist Memorial Hospital). The patient is now receiving intensive X-ray therapy with no improvement; the mass is beginning to infiltrate the anal canal.

(f) Treatment, (1) *Preoperative.* — Where patients appeared with a large abscess, the abscess was drained, under local anesthesia, and the patient observed for a variable period. As soon as induration, swelling and discharge subsided, the patient was readmitted to the hospital. Tepid soapy sitz baths, three times daily, are given the day previous to operation. A purgative is given 24 hours before operation. Sterile normal saline (two quarts each) are administered the night before and the morning of operation. Shaving and actual sterile preparation are done in the operating room, or within an hour or two of operation. Preoperative analgesic medication consists of the hypodermic injection of morphine sulfate, grains 1/4, or a similar narcotic, and scopolamine, 1/200, one hour before operation. It might be suggested that measures might now be taken to protect the operative area, prophylactically. Ten grains of neoprontosil, four times daily, beginning three days before operation,

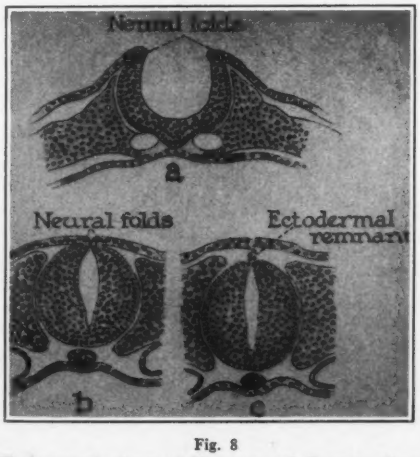

Fig. 8

The neurogenic theory of Herrmann and Tourneux (from Zieman[20]). Theoretical demonstrations of embryologic process resulting in cell rests responsible for pilonidal sinus formation. (a) Neural folds in cross-section, caudally, early in process of forming neural canal and spinal cord. (b) Partial fusion of folds. (c) Cord and "skin fusion" complete. Ectodermal cells pinched off during spinal cord retraction from "skin," lying beneath embryonic skin layer.

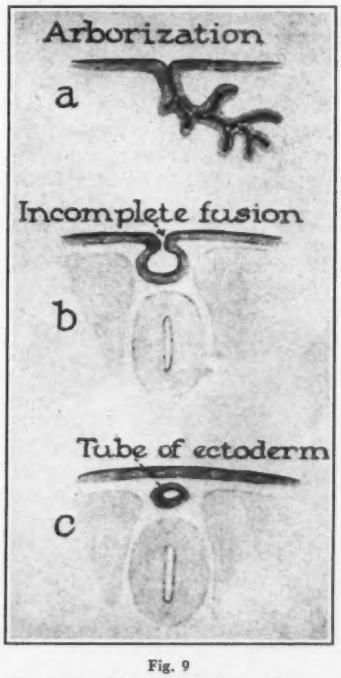

Fig. 9

The ectodermal invagination theory of Lannelongue (from Zieman[20]). (a) Ectodermal invagination due to poor fusion of the two halves of the embryo, resulting in sinus formation and arborization in some cases. (b) Simple defect produced by imperfect fusion. (c) Perfect superficial ectodermal fusion, with subcutaneous roll of ectoderm, as in b, forming tube or sinus tract (cf. Fig. 8c).

may increase the number of "potential" primary closures.

(2) *Anesthesia.*—Spinal analgesia has been used in the majority of the operations. Local analgesia has been used but twice, excepting in the opening of abscesses only, where it has been used almost exclusively. Inhalation anesthesia was used in but few cases. Because of the prone position, intravenous anesthesia has not been used. There has been no contraindication, in the majority of the cases, to the use of spinal analgesia. From 50 mg. of metycaine to 75 mg. of neocaine have been employed. The analgesia lasts about one hour when the above amounts of analgesic are employed.

(3) *Operative Technic.*—The conservative method of dye injection and block dissection, followed by open iodoform gauze packing has been employed almost routinely in the last five years. Approximately 20 per cent of lesions presented themselves where the temptation to try primary closure has been easily overcome. One out of three (33 1/3 per cent) broke down or became infected deeply. What is the immediate prospect? The patient's confidence is lost, hopes have been dashed, and a long period of dressing a disgruntled patient's "back side" stares the surgeon in the face. The safer routine presents a brighter and perhaps a shorter period of secondary healing than the picture of a broken-down wound with its many labyrinthine pockets of pus. Bearse's (*Fig. 15*) adhesive straps are employed to obtain better exposure. All bleeding vessels are coagulated with the high frequency current. The high frequency cutting current was used in several earlier cases, but now the scalpel is employed. The cutting current was discarded because of tissue color changes making more accurate and conservative excision of the block difficult. The coccyx has been removed in but two cases where definite periostitis is one case, and osteomyelitis in the other were present. Ferrari[37] reported 142 cases of pilonidal sinus. In 65 cases the coccyx was excised. He described 14 recurrences.

After block dissection of all visibly injected and isolated pathologic tracts, making certain to leave only highly refractile fat and glistening sacrococcygeal fascia, Bearse's straps are released to render the cavity smaller. A meticulous search is then made for the smaller bleeding points and "oozers," and they are coagulated. The elliptical space is then lightly packed with fresh iodoform gauze. The use of crystalline sulfanilamide packs,[38] was attempted in three cases. It was discontinued. It produced a beefy gray granulation tissue which healed more slowly than usual. A thick protective dressing is then secured and the buttocks are held toward the mid-line by an assistant while wide adhesive bands are applied. This move obviously accomplishes further decrease in the size of the cavity. The tight strapping also allows the patient to move about with less pain. A liberal triangular flap of waterproof adhesive is lastly applied, attached to the caudal side of the dressing. The flap's apex adheres about 2 cm. from

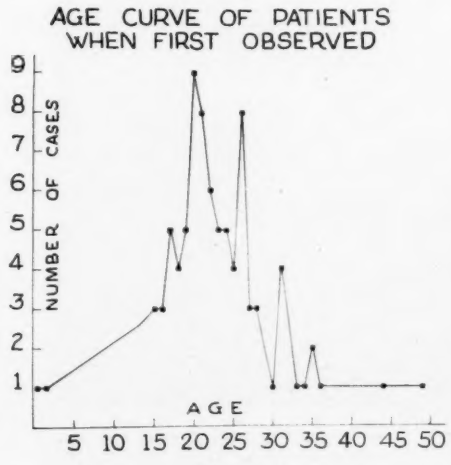

Fig. 10

The age curve reveals that 46 per cent of the patients presented themselves for treatment beween the ages of 16 and 26. The greatest number, in any one age year, presented themselves at 20. There were nine patients at 20 years of age.

Fig. 11

Twenty-months-old negro male with a well-developed sinus. The tract was one cm. in length, and uninfected.

the anocutaneous junction. Its purpose is to protect this most vulnerable part of the wound from anal and colon tube contamination.

(4) *Postoperative Care.*—The patient is kept lying prone when returned to his room. He is instructed to lie either upon his abdomen or hips, but not to turn on his back if he can possibly avoid it. Keeping pressure from the operative area should allay pain and maintain a more normal blood flow to the injured parts. Patients require not more than one or two hypodermic injections of narcotics after this operation. Narcotics should not be withheld if the patient has a low pain threshold, for a day or two. Empirin compound with codeine provides an excellent postoperative analgesic. A colon tube is carefully inserted every four hours, for 30 minutes only, in order to keep the patient free of gas pains which are a very common annoyance in this operation. In adipose patients where ileus might supervene, one-half ampoule of pitressin is given hypodermically every six hours for 48 hours or more. Liquid diet is maintained for 72 hours, in order to keep the gastro-intestinal tract reasonably empty and ensure no bowel movement until after the first packing removal. The packing is left *in situ* for 96 hours (four full days) in order to obtain a good foreign body reaction and the formation or protective pyogenic membrane upon the cut surfaces of the wound. The wound is repacked every day thereafter until the patient is discharged from the hospital. Utmost cleanliness must be observed during the packing period, the wound being irrigated with sterile normal saline after packing removals. Sulfanilamide, 0.08 per cent solution, and neoprontosil, 2.5 per cent solution, were used recently (as had been Dakin's solution and other antiseptics) but they proved to be of no particular advantage. The patient is allowed up on the fourth or fifth day, and may go home on the seventh or eighth day. As soon as the wound is no longer able to hold a pack, sitz baths are ordered twice daily until it is completely healed. The hair, which grows rapidly in this area, should be kept shaved, at least once weekly, until healing is complete. Here follows the most critical period in healing: Too much activity; sitting or lying upon the operative area; poor hygiene; careless dressings; all contribute to delay the healing process. If the patient is properly instructed at this time, healing will proceed rapidly and a good result

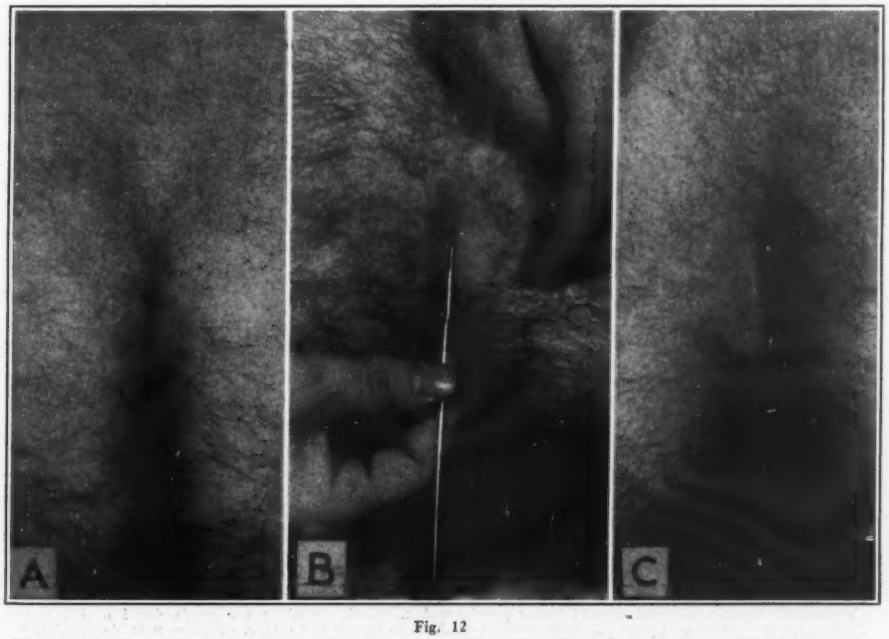

Fig. 12

Pilonidal sinus in a father and two sons. Note prominent "bald spot" (Oehlecker) in all three. (a) Father, symptomless pilonidal sinus. (b) Older son, operated upon. There were two natural sinus openings. Probe points to the smaller lower sinus. (c) Younger son, a physician. Note hairs protuding from sinus.

will be obtained in six weeks to two months. That epithelially-caused recurrences are rare is the belief of most surgeons and pathologists. Delayed healing, however, is common. Pilonidal sinus is a disease of young males. They do not take "suggestions" readily. They must be instructed explicitly in the care of their wounds; in curbing their physical exuberance; and in bathing the affected parts thoroughly twice daily. Above all, the patient should not be discharged until the wound is securely healed. A thin layer of delicate glistening white epithelium does not mean secure healing. After the wound becomes completely bridged over, it is still in a friable state for weeks. It is during this period that many of the so-called "recurrences" take place. The patient should be instructed to remain complacent and refrain from physical strain for at least one month after observing complete epithelial covering of the wound. Strenuous athletics should not be indulged in for three to six months after healing is apparent, depending upon the exigencies of the individual cases.

Fig. 13

A Negress with pilonidal sinus. This is a photograph of our first Negress, taken several years ago when the disease was considered a rarity in the Negro. There have been seven others since this picture was taken, including *Fig. 11*. a, natural sinus. c, *cul-de-sac*. d, abscess. e, connecting suppurative tract.

(5) *Follow-up and Results.*—The John Gaston Hospital series revealed three cases of delayed healing. In one, curettage of the granulations and two weeks' rehospitalization brought about complete closure. The Baptist Memorial Hospital series revealed three cases of delayed healing, one in a boy of 16 who persisted in playing football after repeated warnings. His wound remained open for nine months. In the second case of delayed healing, the wound remained open for seven months. Curettage, x-ray, silver nitrate and finally complete rest in bed for one month, with warm boric packs continuously, finally aided in complete closure of the wound. In the third patient (one of Dr. McGehee's) a most extensively infected and involved lesion, extending not only upward, over the sacrum, but almost encircling the anus, two years were required to produce complete healing. At the primary operation, approximately a square foot of buttock, sacral and perianal area had to be denuded, due to extensive pocketing and undermining. The infection had spread deeply into

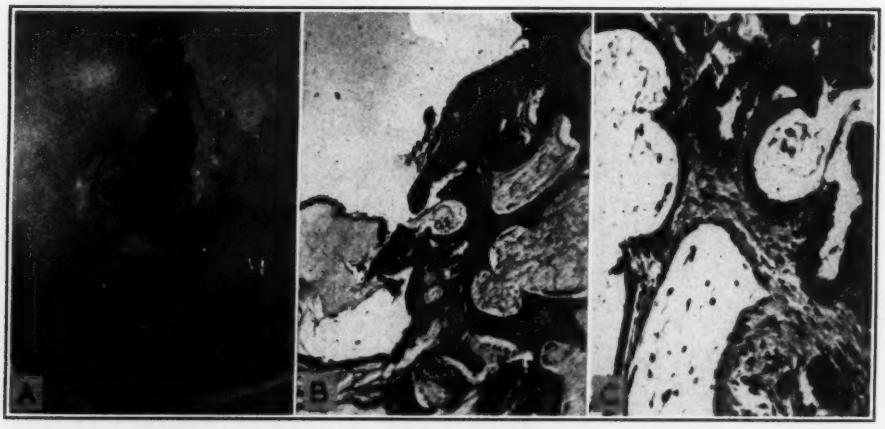

Fig. 14

Carcinoma in region of pilonidal sinus of twenty years' duration. Carcinoma about one year's duration. (a) Gross photograph of carcinoma, showing cavernous excavations down to sacrum and coccyx, extending from the sacral dimples down to the anal ring. (b) Low power (x90) photomicrograph revealing polycystic structure and colloid type of cuboidal cell arrangements. (c) Higher power (x200) photomicrograph, Grade 1, slow growing carcinoma of the sweat gland type. Note cuboidal cell linings of polycystic structure. Mitotic figures about per high power field.

the muscular bundles of both glutei maximi also. Two skin graft operations followed in succeeding months. In about four months, the involved areas were about 90 per cent healed, the perianal skin grafts taking excellently. Despite infinite care, healing slowed down. Every possible known adjunct aided by extensive and intensive bacteriologic (aerobic and anaerobic), dermatologic and endocrinologic study, was used locally and systemically. Sulfanilamide powder was the last agent used. It is believed that it aided in keeping organisms out of the wound, hence contributed toward the final slow healing process.

SUMMARY

(1) The literature of pilonidal sinus is presented in order to bring the subject of anatomy, pathology, etiology and treatment up to 1940. The literature is divided into the "pre-Stone age" and the "Stone age."

(2) A "composite history and physical examination" is revealed, showing the ease of diagnosis and identification in the large majority of cases.

(3) Gross and microscopic studies are discussed and some photographs and microscopic sections presented.

(4) In a report of 87 cases:

(a) There were 40 patients seen between the ages of 16 and 26, or 46 per cent; 44.8 per cent presented themselves before the twenty-second year. Two infants are included.

(b) Sixty-five males and 22 females, a ratio of approximately 3 to 1, are reported.

(c) A familial tendency was found in three instances. In one, two brothers and their father had pilonidal sinuses.

(d) There were eight Negroes in the series, four males and four females.

(e) A case of malignancy, apparently arising in a pilonidal sinus of long standing, is presented for consideration.

(f) Treatment is taken up in detail and divided into preoperative, anesthetic, operative and postoperative phases.

(g) There were no recurrences, but six cases of delayed healing occurred in the series, and these are discussed.

CONCLUSIONS

(1) Pilonidal sinus was well named by Hodges. Not only is it a sinus (not a cyst) but often it contains a "nest of hair." Careful study, and later dissection of the sacrococcygeal area, will always reveal the sinus tract leading to the invariably present *cul-de-sac*.

(2) The diagnosis of pilonidal sinus is made

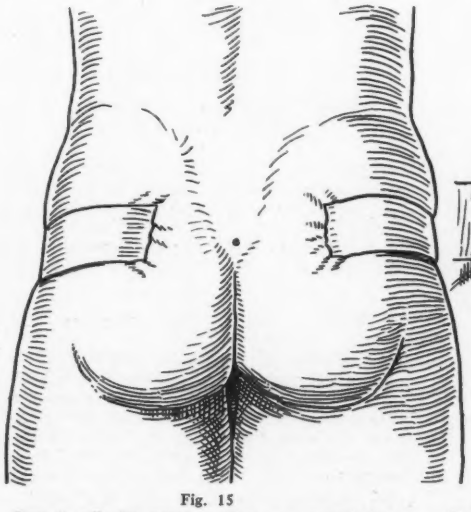

Fig. 15

Bearse's adhesive straps. They are secured four inches from the mid-line and then attached to the operating table. Excellent exposure is thus obtained.

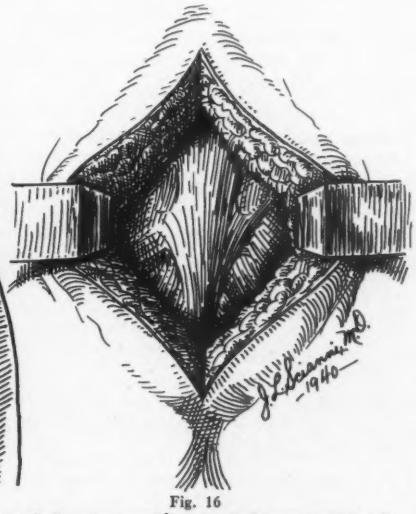

Fig. 16

Block dissection completed, showing sacrococcygeal and anococcygeal fascia exposed; pilonidal sinus, its peripherally involved and infected tissues and abscesses excised *en masse*.

in most instances by merely listening to the patient's history. The physical examination; showing Oehlecker's bald spot; the postanal dimple; the smooth and shiny sinus or sinuses; and an area of tenderness, or an abscess just cephalad to these, easily identifies the large majority of pilonidal sinuses.

(3) Concerning the histology of the lesion, the work of Gussenbauer, Crone, Stone, Newell, Fox, Rogers and Hall, Gage, and Block and Greene seems to establish quite firmly that hair follicles, sweat glands and sebaceous glands are integral parts of pilonidal sinus.

(4) It follows, therefore, that the ectodermal invagination theory of Lannelongue, supported by the researches of Aschoff, Klemm, Stone, Breidenbach and Wilson, and Fox, is more convincing and logical than the neurogenic theory of Herrmann and Tourneux. However, the final solution is not so easy to arrive at as the above syllogism seems to indicate. The infinite pains and work of Herrmann and Tourneux, Mallory, Kunitomo, Oehlecker and Gage, supported by the carefully reported cases of Moise, Ripley and Thompson, Weeder and Zieman, should make one hesitate before accepting a final verdict. Probably Gage's classification of the anatomy and histology of pilonidal sinus arrives more closely at the solution of this problem than any other. He divides pilonidal sinus into four main groups, ranging from the common postanal dimple through various stages, until he arrives at the sinus which enters the sacral canal, the subarachnoid space, or the central canal of the spinal cord, through a defect in the sacral vertebra.

(5) Pilonidal sinus may be discovered at any age, though most begin to cause symptoms soon after adolescence. This is probably due to stimulated new growth of hair and sebaceous glands, causing inspissation and blockage, leading to infection after mild or insignificant trauma.

(6) The ratio of male to female incidence grows closer to 1:1 as more series are being reported. Breidenbach and Wilson's suggestion, that the lesion is not subjected to trauma as often in the female as in the male, should be given much consideration.

(7) A familial tendency is proven, as first brought out by Stone, substantiated in three families in this report.

(8) Pilonidal sinus is not rare in Negroes.

(9) Malignancy could occur in pilonidal sinus, as it is comprised of skin, sweat glands and sebaceous glands, in which structures malignancy is not uncommon. In the case of apparent malignancy in a pilonidal sinus presented here, no physician saw the lesion before malignancy began, hence the element of doubt is definitely present.

(10) The choice of treatment, in the great majority of cases, consists in: good preoperative preparation; preliminary dye injection; dissection *en masse* with the scalpel; iodoform packing and infinite postoperative care and supervision. Primary closure should be planned only in the occasional small, superficial type of pilonidal sinus.

Physicians and Surgeons Building

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DISCUSSION (*Abstract*)

Dr. Malcom D. Thompson, Louisville, Ky.—Accurate diagnosis of this condition is easy if it is kept in mind.

One should remember that from the opening the tract runs superiorly and anteriorly. If the tract leads toward the anus, the diagnosis of pilonidal sinus should be questioned and the anal canal and lower rectum should be carefully examined. When in doubt a radiopaque substance may be injected and anterior-posterior and lateral x-ray studies made, my preference being Beck's bismuth paste for the injection. Also carmine may be given by mouth and should it come out the

sinus, then one knows that there is a connection with the alimentary canal and the condition is almost certainly not a pilonidal sinus.

Infected sacro-coccygeal dermoids have been known to rupture posteriorly and be mistaken for pilonidal sinus. Since the dermoids are anterior to the sacrum and coccyx, injection x-ray studies will help in reaching a diagnosis. Connection of a pilonidal sinus with the neural canal has been reported, but is certainly very rare. Bacteriologic studies will occasionally be useful in discovering fungus or other chronic infections in slowly healing wounds following excision.

Dr. Tendler has called our attention to the ever-present menace of cancer. Should the area look suspicious before operation, biopsy studies should be made so the excision will be as radical as possible if malignancy is present. All tissue removed at operation should be submitted to the pathologist so no case of malignancy will be overlooked and so that postoperative irradiation may be employed. In addition to Dr. Tendler's case, Dr. Singleton has reported a case of carcinoma secondary to pilonidal sinus, so there must be other cases which have not been recorded.

Dr. Tendler has emphasized correctly that excision must be complete for recovery to ensue. It apparently makes little difference whether excision is by cautery or scalpel just so it is complete. I believe that some cases following scalpel excision should be closed by primary suture. The important factor is to obliterate all dead spaces and maintain that obliteration for at least twelve days. To accomplish this Gage uses a sea sponge dressing, while Ferguson ties deep through-and-through sutures over gauze rolls.

Where there is a large defect after excision and in recurrent cases, the wound should be left open and permitted to granulate from the bottom. The important factor here is strict attention to the details of after care. Saline packs, sitz baths and irrigations with peroxide solution have been useful to me and what is most essential the wound with the patient in the prone position must be inspected frequently to prevent bridge-healing at the top instead of solid healing from the bottom. In a recurrent case where there was extensive scarring with loss of considerable skin, I obtained a cure simply by opening the tract, destroying the lining thoroughly with the electrocoagulating current, packing with vaseline gauze and careful attention to the post-operative dressings.

Dr. Rufus C. Alley, Lexington, Ky.—The incidence of involvement in Negroes Dr. Tendler dwelt upon briefly, and I was surprised to hear that he had observed so many cases in the Negro. I recently operated upon identical twin negro girls with this condition.

The girls were 19 years old.

The open type of operation was done. They were operated upon within ten days of each other, and the diseased tissues were practically identical.

From a practical point of view, the question that confronts most of us is, what type of operation should be done to remove the diseased tissue? That question, I think, can best be answered by quoting the statistical review of Martin Kleckner given in 1936, in which he reported 4,699 collected cases. The open method of operation, in which the wound is left open, packed and allowed to heal by granulation, was used in about 4,000 of these cases, and the result was unsatisfactory in only a little over 1 per cent. On the other hand, primary closure method was used in 365 cases, and the percentage of unsatisfactory results was a little above 23. These cases were all done by competent surgeons, and unsatisfactory results of 1 per cent as compared with 23 per cent are highly significant.

Another type of operation that has proven entirely satisfactory in my hands is the so-called exteriorization procedure described by Buie and used by him at the Mayo Clinic over a period of years. This operation consists essentially of opening the sinus and where a definite saccular membrane is encountered, simply opening that widely, trimming away the redundant skin and suturing the membrane to the skin margins. That procedure does, in my opinion, definitely cut down the length of time required for healing.

The procedure of injecting so-called chemical ferrets into the sinus tract is used by some operators, but it is of questionable value. If any dye is to be used it is perhaps better to use methylene blue in a fresh solution of hydrogen peroxide, because the peroxide will bubble and carry the dye through the small ramifications of the tracts better than the dye in an aqueous solution would penetrate the cavities. This is not infallible, because all of these pockets apparently do not connect with each other, and if too much pressure is used the delicate lining membrane may be broken and the dye disseminated through normal structures.

Dr. Robert L. Sanders, Memphis, Tenn.—I should like to call attention to an important phase of this subject, the closure of the wound.

During the past quarter of a century it has been my privilege to see a goodly number of cases of pilonidal sinus. All of the usual methods of closure have been tried with disappointing results, and I have seen only one case that healed by primary union. It would seem that some method of closure could be devised whereby a prompter healing of the wound would occur. In an effort to shorten the time element in wound healing, some time ago I applied an old principle in a new way. So far as my knowledge of the literature goes, this method has not been mentioned in the treatment of pilonidal sinus wounds. It relates to a delayed closure of the newly made surgical wound. For a number of years I have noticed that infected wounds heal better when they are packed with antiseptic gauze for from twenty-four to forty-eight hours before the closure is completed.

About two years ago Dr. Fred Coller, of the University of Michigan, presented a paper before the Southern Surgical Association advocating the delayed closure of abdominal wounds at the time of closing colostomies. The bowel was first closed, sunk beneath the fascia and muscles, through-and-through sutures applied, but left untied, the wound being packed with acriflavine gauze. After forty-eight hours the packing was removed easily and the sutures tied, thus loosely approximating the abdominal wall without further drainage. Primary healing in such procedures was the rule. We have applied this same principle to the closure of pilonidal wounds. A wide excision of all diseased tissue is first done, the margins of the newly made wound are freed all around, and a series of interrupted silkworm gut sutures is applied, but left untied. The wound is then loosely packed with antiseptic gauze, and a snug dressing applied for forty-eight hours. At the end of this time the gauze is removed and the sutures are tied. This approximates the wound edges and no other drain is left in. In the small series of cases in which this method has been used, the result has been surprisingly good and the time required for the wound healing has

been appreciably shortened. Infection has been definitely lessened. Thus an old principle returns under a new name. The method has merit and should be generally tried by the medical profession. I offer it to you for consideration because I believe that it has a definite advantage over the former methods of leaving the wound entirely open or closing it completely.

Dr. W. Kress McIntyre, St. Louis, Mo.—We have been working upon the subject of primary closures of pilonidal sinuses, and in doing colon and rectal work, particularly in colostomies, we have been impressed by the lack of tissue reaction with the use of Babcock's wire.

We have felt that often the failure to obtain primary closure was due to marked tissue reaction, secondary to the introduction of foreign substances such as catgut and linen sutures.

We have not selected our cases, but have taken them as they came along. We felt that we should get more primary closures in pilonidal sinuses. We used to coagulate our blood vessels, but we eliminated that because we felt we had too much dead tissue and slough. We used to use a drain down at the lower end, a rubber drain at the lower pocket, and we felt that was an irritant, and so we eliminated that.

It seemed to me that one of the principal factors preventing primary closure was the fact that we did not obliterate dead space together with the tissue reaction. For that reason I felt that the primary placing of the first suture, especially in the bend where the coccyx turns down, was a factor of importance.

For the last year, I have used a silver wire. I place my first suture under the coccyx. I go through the skin, under the coccyx, out again, and by tying that I obliterate the dead space, and that is most important, because that is the curve.

The other sutures are placed by the deep fascia, through the skin, then you come through the fascia and out the side, and back superficially on both sides. We have used the double O and MO catgut for the tying of blood vessels. We make a radical incision. We almost reach the edges of the gluteus maximus muscle.

One mistake which I think is sometimes made is that surgeons go down too low; in other words, too close, you might say, to the anal verge. The incision has extended down too far, which should be avoided. We watch that, obliterate the dead space, use the C sponge for pressure, use wire and keep the patient in the flat position on the abdomen for a period of seven or eight days. We take all the sutures out by the eighth or ninth day.

We have had quite a successful series of cases up to this time, though I am not ready to report just yet.

Dr. M. S. Kleckner, Allentown, Pa.—In 1936, at the meeting of the American Proctologic Society in Kansas City, I listed a series of about five thousand cases of pilonidal sinus taken from the records of its membership. My own series comprised over three hundred cases at that time.

A review of these cases elicited some very interesting facts, particularly curability following operation in the sutured versus the open methods of healing. When examining these cases I always put the patient in the left Sims position and then take a piece of gauze dipped in alcohol and, rubbing it vigorously in the mid-line over the sacrococcygeal area, ofttimes bring out the pin point openings characteristic of pilonidal sinus.

As far as the embryology of this disease is concerned, I agree with Dr. Tendler. If the sinus has but a single opening and the tract is small, you can very often treat these cases in the office under local anesthesia and excise or obliterate them by applying the actual cautery to the walls of the tract. It is only by complete evisceration of the walls of the sinuses that you can cure them. The more extensive or the larger the sinus tracts, the more need I have found for wide excision with cure more certain when the wounds are permitted to heal by third intention or the open method.

I have absolutely no confidence in sutures, and have found that 22 per cent of the cases that were sutured in this series recurred or remained unhealed with constant drainage at the end of at least a year. About 12 per cent of the cases that were partially sutured and drained also recurred. In this series of five thousand cases that had been left to heal by third intention, less than 0.2 per cent failed to heal, and I am certain there would have been no failures if proper operative and thorough postoperative care had been given them. The most important thing for good healing is wide enough excision. Prior to the excising of these cases, I do not advocate the use of a dye, because the sinus tracts themselves are like the branches of a tree; they have fine tendrils going out from the main branch. If the dye is injected under a little more than ordinary pressure it will penetrate into the surrounding tissues, thereby complicating an apparently simple operation. It is an entirely unnecessary procedure and in experienced hands is never used.

I always put a probe through each sinus, and then open up each one the full length of the tract. After the sinuses have been completely opened and observed, their removal by wide excision, best by means of the electric knife, is a neat and easy procedure. This, I find, is the best way to treat pilonidal sinus. Should you leave any little area which looks suspicious or unhealthy, it is urged that you take it out immediately. I am now speaking of those sinuses that have two, three, or four openings and those are the ones you will commonly find. In the cavities made by this operation I place gauze saturated with a tincture of one of the ordinary mercurial products and then securely strap the dressings in place with overlapping layers of adhesive. This dressing is not removed until the third day, when the patient has the first bowel movement and hot tub or sitz baths are begun.

One reason why some of these operations fail is that the operative technic has not eliminated all the "dead space," completely stopped the oozing, and inefficient postoperative treatment has followed.

The patient is given a cathartic, preferably castor oil in orange juice and soda, the morning of the third day and after the bowels have moved the first redressing is performed, while later in the day the patient gets the bath. The wound is lightly packed every morning following the bath. An ounce of one to five thousand bichloride of mercury solution or one to one thousand biniodide of mercury solution is poured into the wound at the top of the dressing every four hours. This has hastened healing and the convalescent period is reduced one-half. Other solutions may be used where mercurials are contraindicated.

It is important to remember that following the diagnosis and operation many things may occur during the convalescent period, that thorough postoperative care is absolutely necessary if you wish to obtain the best result in the shortest possible time. I advise against the suturing of these wounds. If you continue to use the open method and are meticulous in your follow-up, you will find your percentage of cures will be practically 100.

TULAREMIA DUE TO TICK BITE*

By STANLEY L. LEVIN, M.D.
Fayetteville, Arkansas

The clinical picture of tularemia is well known to the average practitioner. However, the fact that this disease frequently results from the bite of insects such as ticks and flies is not fully appreciated. This is especially true in the Eastern United States where this type of the disease is less frequently seen. The purpose of this article is to report experience with tularemia due to tick bite and emphasize the clinical features of such cases. The author has been impressed by the number of deaths from tularemia due to tick bite reported in the newspapers of the surrounding area in the past two years.

Since December, 1936, thirteen cases of tularemia have been diagnosed and treated in this hospital. Seven of these (54 per cent) were due to tick bite. Four were of the ulceroglandular type from dressing wild rabbits. One case was of the typhoid type with no history indicating the mode of infection. One case of the oculoglandular type was seen, and was possibly due to crushing an infected tick with the fingers.

There was no mortality in the group infected by handling rabbits. The case of the typhoid type was rapidly fatal. One death occurred among the cases due to tick bite. The mortality for the entire group was 15.4 per cent, and 7.7 per cent for the tick bite cases.

Several ticks are known vectors of tularemia. Dermacentor andersoni, the common wood tick,[2] and Dermancentor variabilis, the American dog tick,[3] are proven common carriers. The rabbit tick, Haemaphysalis Leporis-palustris,[4] has been shown to be naturally infected. Pasteurella tularensis has also been reported in the wood tick, Dermacentor occidentalis Newmann,[5] collected from tick infected cattle in California. It is probable that in time other ticks will be found infected.

The exact mode of infection by the tick is not known, but Francis[6] is of the opinion that this takes place from the feces of the tick, since the organisms are not present in the salivary glands.

The public health aspect of tularemia is clearly important when it is realized that ticks represent a permanent reservoir of infection. The female can transmit the organisms through the egg to the young who then harbor them throughout life.

The clinical manifestations of the disease have been classically described by Francis.[1] Within 24 hours following tick bite there is usually an acute onset with generalized body pains, anorexia, headache, chilliness or shaking chill, fever, prostration, and sweats. The patient's attention is usually drawn first to the regional lymph nodes which become painful and begin to enlarge within 48 hours after onset. A day or more later he is likely to discover a reddened, swollen, painful papule with or without tenderness of the surrounding skin. This papule undergoes necrosis and discharges a core, leaving a punched-out ulcer about 1 cm. in diameter with a raised edge and beefy base, often thinly covered with a light yellow mucopurulent exudate. The tularemic ulcer is often not unlike a chancre in appearance, and might be easily confused with this lesion. Tenderness and red streaks of lymphangitis may be present between the ulcer and the draining lymph glands. The development of the ulcer and lymphadenitis occurs in the same manner whether skin infection be due to tick bite, fly bite, dressing rabbits, or other means.

Favorite sites of tick bite are the groins, genitalia, perineum and buttocks, though any area may be involved.

The fever is usually of the remittent type and may be of any degree. Sometimes it returns to normal after 1-3 days, and after 1-3 days more rises again, then gradually subsides over a period of days or weeks. Moderate leukocytosis is an inconstant finding. A skin eruption occurs occasionally, but this was not observed in the cases reported.

The diagnosis is not difficult. Errors are usually due to failure to bear tularemia in mind. It should always be thought of in cases presenting a history of: (1) tick or other insect bite, or scratches; (2) a primary papule or ulcer, especially in the region of the groin or genitalia; (3) enlargement of the lymph nodes draining the primary lesion; (4) fever of two or three weeks duration. Further, the condition should be suspected more strongly in the months from January to October, the period of greatest tick activity.

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The most important laboratory diagnostic procedure is the agglutination test. Agglutinins do not appear in the blood until the second week of the disease but are constant afterward. The titer then increases and reaches a maximum between the fourth and seventh weeks. If a positive agglutination is obtained in the first weeks of the disease it should be repeated to obtain a progressive increase in titer. This is further evidence for diagnosis.

It must be borne in mind that human tularemia serum may show cross agglutination of Brucella abortus and Brucella melitensis. The tularemia serum, however, usually shows agglutination in higher dilution than the Brucellae. The test should be made only with fresh sera to preclude changes in titer which take place on standing in the refrigerator.

More elaborate methods of diagnosis such as isolation of the organisms by animal inoculation are not ordinarily required and have not been found necessary by the author.

A digest of clinical cases follows:

Case 1.—A white male, 41, was admitted June 27, 1937, with a history of an insect bite above the left knee 3½ weeks before admission. Twenty-four hours later he noticed left inguinal swelling, chills, and fever. The swelling persisted until a few days before admission when it began to subside.

Fig. 1, Case 2
Showing healing tularemic ulcer of shaft of penis.

Examination revealed a small ulcer just above the left knee cap on the medial side. A mass the size of a bantam egg was present in the left inguinal region. The upper third of the left thigh was discolored and hot.

Agglutination for Pasteurella tularensis was positive at 1:640.

The patient had intermittent fever for several days after admission, once reaching 102° F. The ulcer healed readily. Adenitis had nearly disappeared at the time of discharge.

Case 2.—A white male, 43 years old, was admitted July 15, 1939, for fever of undetermined origin, which he had had for 3 weeks. His physician thought it was

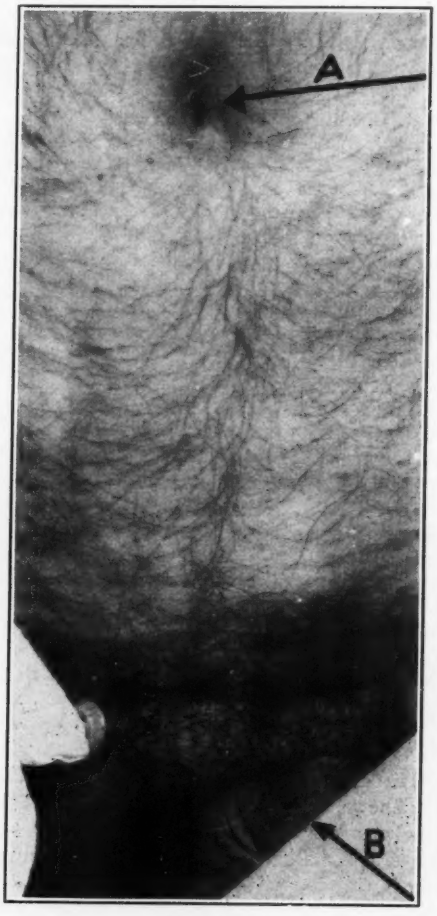

Fig. 2, Case 3
Showing tularemic ulcer of glans penis and umbilicus. A—Tularemic ulcer of navel. B—Tularemic ulcer of glans.

malaria and gave him two courses of atabrin. No blood examination was made prior to this treatment. Questioning revealed that the patient picked a tick off the penis 3 weeks before admission. The sore following the bite had not healed before admission.

Examination disclosed a patient moderately emaciated, and slightly toxic. On the left side of the penile shaft there was an ulcer 3 mm. in diameter. It was circular, depressed, with a smooth, pink base. The base and edges were not indurated and the surrounding skin was not inflamed. The superficial inguinal lymph nodes were moderately enlarged, tender, and beginning to fuse.

Laboratory examinations showed white blood cells 8,900 and polymorphonuclears 44 per cent (3 per cent stabs). Agglutination 9 days after admission was positive at 1:160 for P. tularensis.

The patient ran a low grade intermittent fever with rise to 99.8° F. in the afternoons. Smear for malaria was negative. The ulcer healed slowly leaving a small scar. The inguinal bubo was soft, non-adherent, and slowly undergoing fluctuation at the time of discharge.

Case 3.—A white male, aged 60, was admitted July 20, 1940. He had removed ticks from his body after picking blackberries on July 7. He discovered several more strongly attached two and three days later. By that time he had anorexia, generalized aching, chills, and drenching sweats.

Examination disclosed a patient acutely ill, and toxic. He was well developed, and slightly obese. There was slight injection of the conjunctivae. His blood pressure was 122/58 (172/88 on a previous admission) with slight accentuation of A_2. There was moderate radial sclerosis. There was a punched out ulcer on the right side of the glans penis with a right inguinal adenopathy. In addition a small ulceration of the navel was noted. These lesions remained essentially unchanged.

Febrile albuminuria was present. The white blood count was 5,100 and 5,200 on 2 examinations, with polymorphonuclears 78 and 77 per cent. Secondary anemia developed, the hemoglobin dropping to 55 per cent before death. No agglutination was present for P. tularensis on July 22 and July 29, but on August 10, this was positive at 1:160.

He remained drowsy at all times. Fever was remittent, usually 101-103° F., but reached 102-105° F. during the 3 days before death. Sulfanilamide was ineffective. Spinal puncture was not done. He died August 17, 1940.

Case 4.—A white male, 45, was admitted September 9, 1940. He complained of high fever, headache behind the eyes, generalized body aching, weakness, drowsiness, profuse sweats, and loss of 12 pounds in 5 days. He had picked a tick off the right groin 6 days before admission.

Examination revealed a well nourished male, mildly toxic. In the right inguinal region there was a round ulcer 0.5 x 0.25 cm. with a slightly raised edge, necrosis of the center, and accumulation of a yellowish gelatinous exudate on the base. Immediately beneath the ulcer in the right groin were several moderately enlarged, elastic, extremely tender superficial inguinal lymph nodes.

On admission his hemoglobin was 95 per cent; white blood count 14,200; polymorphonuclears 79 per cent (7 per cent stabs). Agglutination for P. tularensis was negative on admission but 7 days later was positive at 1:320.

He grew worse after admission, running a fever as high as 104° F., with marked sweats. His fever finally subsided completely on October 18, 1940. The ulcer was indolent, requiring 2 months for complete healing. Of interest is the fact that during the height of the disease, while taking sulfanilamide, the patient developed a patchy consolidation of the right lower lobe, apparently pneumococcal. Blood transfusions were required to combat anemia due to sulfanilamide therapy. He did not return to work for several months after discharge on account of asthenia.

Case 5.—A white male, 52, was admitted September 25, 1940, for hernia. At this time a perineal ulcer and inguinal adenitis were found. He gave a history of developing a painful swelling in the right groin 3 weeks before admission, making walking difficult. Two or three days later an ulcer about the diameter of a red pencil appeared on the perineum and neither drained nor changed perceptibly. Fever appeared at the onset. There was no history of tick or fly bite.

Surgical examination revealed a moderate, firm enlargement of the right inguinal glands and a small crusted ulcer was found between the scrotum and anus.

Agglutination for tularemia was positive at 1:160.

His temperature was normal on admission, reaching 99 several times. The ulcer healed gradually. At the time of discharge the adenitis had become soft, slightly fluctuant, and had resorbed partially.

Fig. 3, Case 7
Typical tularemic ulcer of buttock. Note similarity to chancre.

Case 6.—A white male, 43, was admitted November 5, 1940, for infection of the groin. He had been well until October 27, 1940, when he developed anorexia, generalized aching, and a shaking chill. The following day he had pain in the left groin which became progressively worse.

A number of small red spots were present over the trunk and extremities. Some of these in the groin and on the inner side of the left thigh were ulcerated. The lesions at first suggested a rash, but the patient indicated their origin from tick bites. A moderate left inguinal adenitis with local pain and soreness was present.

Agglutination for P. tularensis was positive at 1:160 when tested 2 weeks after admission. The blood picture was essentially normal.

The patient was mildly toxic on admission. Asthenia was out of proportion to other symptoms. Low grade remittent fever lasted 2 weeks. He was discharged September 19, 1940. He was readmitted November 5, 1940, for fever and found to have a right lower lobar pneumonia. The sputum typing was negative for the first 8 types of pneumococci and contained a variety of organisms.

Case 7.—A white male, aged 42, was admitted June 24, 1940. On June 1, 1940, he was bitten near the anus by a tick. The following day he had high fever and chills which persisted. He complained of aching pain in the right groin on admission.

He was toxic and acutely ill on admission. A slightly tender, confluent, elastic glandular enlargement 2 cm. in diameter was present in the right groin. On the buttock immediately to the right of the anus there was a shallow, round, punched-out ulcer about two-thirds the size of a dime. The edges of the ulcer were raised and indurated, with a mucopurulent exudate on a beefy base.

His temperature was 102° F. on admission. It was of remittent type and gradually subsided in 11 days after admission. Sulfapyridine in therapeutic doses was without effect. The ulcer had healed but the adenitis persisted at the time of discharge.

SUMMARY AND CONCLUSIONS

(1) The clinical features of tularemia due to tick bite have been emphasized.

(2) Seven such cases occurred in a series of 13 cases of tularemia of all types. One such case was fatal.

(3) A digest of seven cases due to tick bite is presented.

Appreciation is expressed to Mr. Russell Trewatha for technical assistance in the study of these cases.

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Airplane view of downtown St. Louis.

ST. LOUIS—WHERE WE MEET

ST. LOUIS*

The capital of commerce and industry in the Middle West, richer yet in tradition and in culture, is St. Louis.

HISTORY

In February, 1764, a little band of French pioneers landed on the west bank of the Mississippi River at what is now the foot of Walnut Street in St. Louis. For many days, patiently fighting the current, they had poled and dragged their heavy craft up the great river from Fort de Chartres, sixty miles below. Wearied by their labors, they slept that night on their boat.

Like the landing of the Pilgrim Fathers, the coming of this "First Thirty," as they became known in colonial days, proved a milestone which marked the beginning of an empire. For when, on the following morning, August Chouteau led his men across the sandy beach and up the plateau overlooking the river, pointing out to them there a line of blazed trees, the ringing blows of axes soon sounded through the woods, and the building of St. Louis began.

The previous year a far-sighted engineer named Laclede had conceived the idea of a permanent settlement in a favorable river location and he fixed upon this ideal spot.

England, France and Spain were contending for a continent, and at that time neither cities nor towns existed in all the silent wilderness of the Mississippi Valley. Here and there, hundreds of miles apart, roughly stockaded and scantily garrisoned forts constituted the only outposts of civilization, refugees against Indian attacks.

Other expeditions, French and Spanish, soon sought to overshadow the little settlement of St. Louis. A Spanish fort was built a short distance to the north. Yet so well had Laclede chosen, and so energetically had his followers labored, that these competitive efforts gradually merged with St. Louis itself. Within three years its colonies had established valuable fur-trading monopolies with the twenty-eight principal Indian nations, including not only those west of the Mississippi, but also east of the river and even as far north as the Great Lakes. These the English tried in vain for many years to break.

With the Louisiana purchase in 1803, all that vast stretch of territory which is now the central and southwestern part of this country came into possession of the United States, more than doubling its area. Meanwhile, St. Louis grew steadily. Seven years after its incorporation as a city in 1823, its population was 4,977, and it ranked forty-fourth among American cities. In 1833 it was in twentieth position.

Missouri became a state in 1821, more than a hundred years ago.

Eighteen hundred and eleven marked the ap-

Municipal Auditorium, where all meetings and exhibits will be held.

*Prepared by the St. Louis Convention and Publicity Bureau, Mr. Frederick H. Rein, Director, for Dr. Arthur W. Proetz, St. Louis, Chairman of Publicity for Southern Medical Association meeting.

St. Louis University School of Medicine, main building.

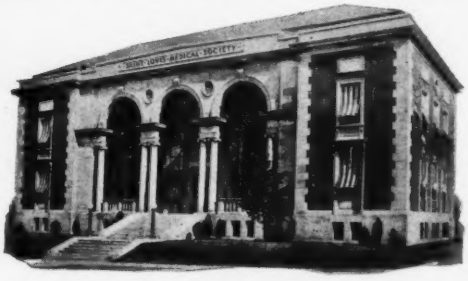
pearance of the Mississippi steamboat and five years later the first steamboat came up the river to St. Louis. For half a century thereafter the river trade grew by leaps and bounds and just before the Civil War it was at its height. Hundreds of the old-time steamers, their decks piled high with cotton, daily ploughed the Mississippi.

On the borderland between North and South, Missouri suffered cruelly from the Civil War, more than one-tenth its battles being fought upon Missouri soil. The great current of traffic, which up to that time flowed north and south, was abruptly broken. The tides of trade turned east and west, served by rails instead of rivers. During the reconstruction period St. Louis temporarily lagged, yet it soon caught the cadence of the shriller whistles and moved on, losing but one rank in the procession of American cities. Today, with its nineteen trunk lines operating thirty lines of railroad, it has become America's second greatest railroad center, with a reborn river traffic greater than was ever dreamed possible.

MODERN ST. LOUIS

St. Louis is the most easily accessible city in the United States. The Terminal Railroad Association of St. Louis has the largest unified freight and passenger terminals in the world. It owns and operates the great St. Louis Union Station by which all passenger trains enter and leave the city. It has more than 400 miles of track, handles 4,660,000 freight cars and 650,000 passenger cars annually, serving 1,500 industries direct from its own tracks. St. Louis is at the center of the Mississippi River inland waterways system, the largest inland waterways in the world. This river system consists of a series of navigable rivers and canals having a total of 13,394 miles which is more than any single railroad system in this country.

The visitor will find of interest a remarkable collection of the records of the early history of St. Louis and Missouri which are housed in the Jefferson Memorial, an imposing marble structure in Forest Park, which stands on the site of the main entrance of the World's Fair. The collection includes relics of the Mound Builders, whose faces no white man ever saw; curios of the Indian tribes who traded with the founders of St. Louis; original manuscripts of the French and Spanish days in Missouri; relics of the pioneers and of the Revolutionary, Mexican, Spanish-American and World Wars;



Home of the St. Louis Medical Society.

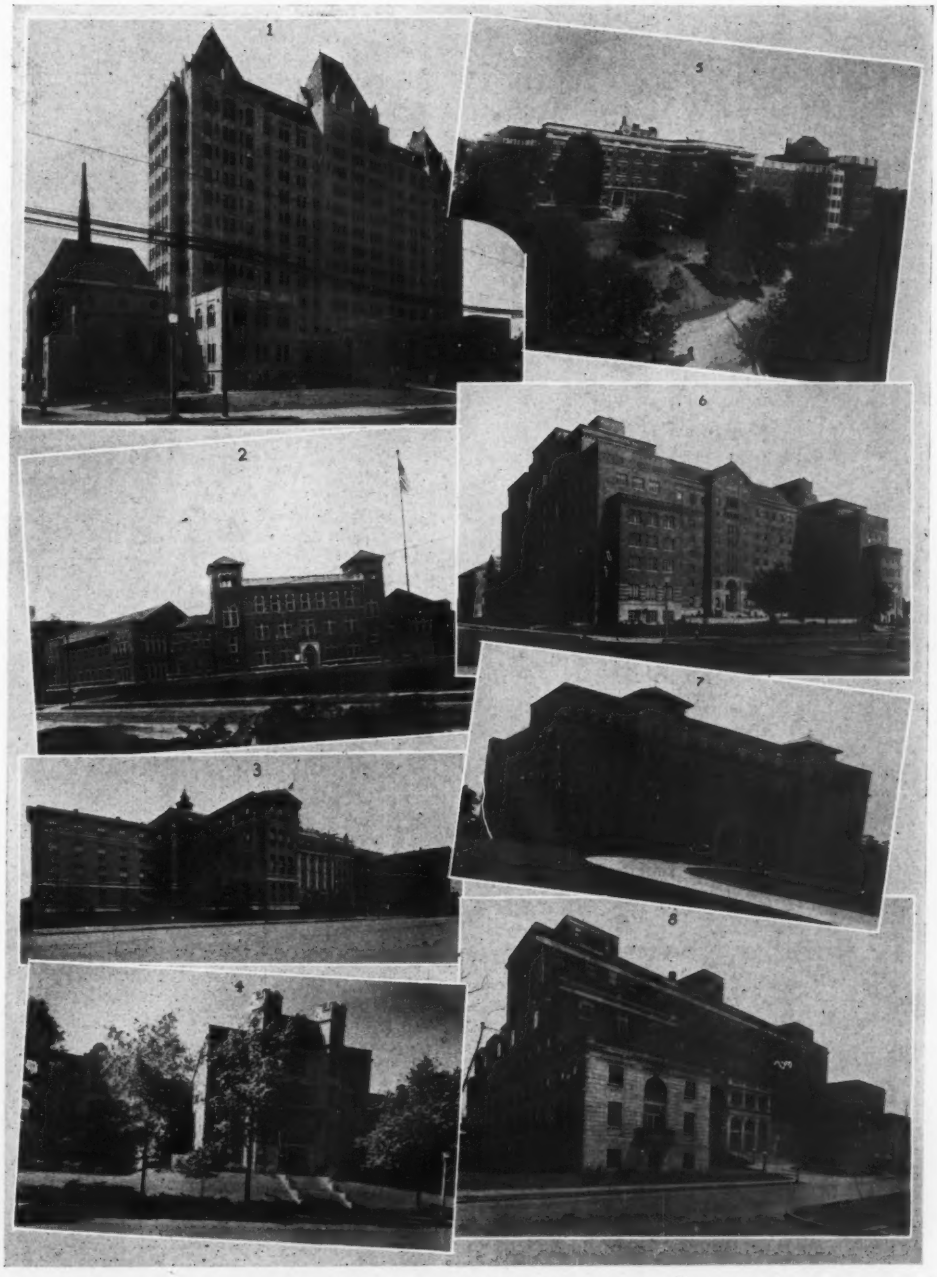
and ancient records of Missouri courts which fixed titles to land and handed down decisions of importance in the early history of St. Louis and its vicinity.

In addition to the third largest collection of Jefferson manuscripts in this country, a large portion of the manuscripts of the Hamilton-Burr controversy, which culminated in the death of one and the destruction of the career of another brilliant man, are exhibited here.

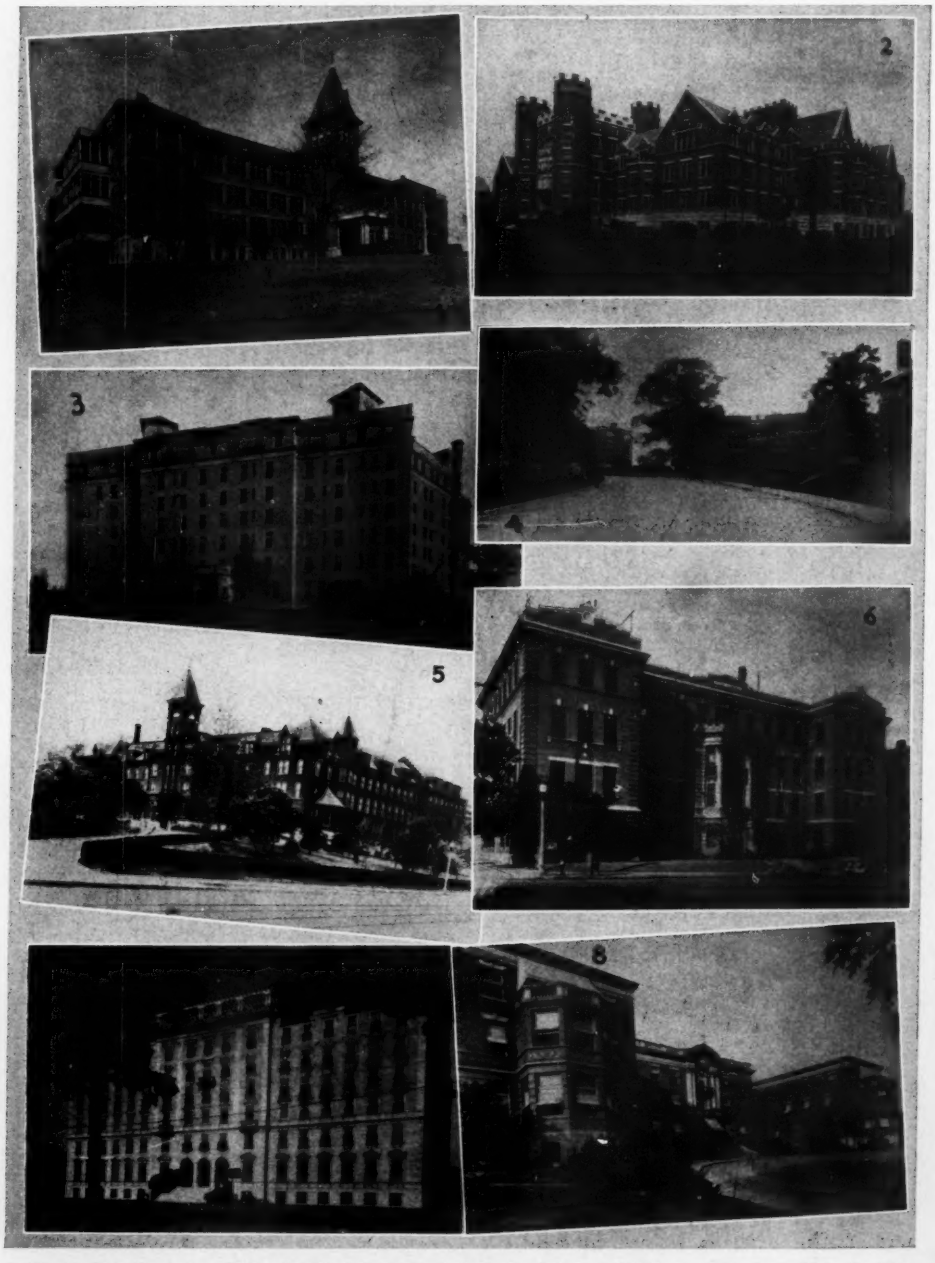
Many of the manuscript records of the Lewis and Clark Expedition repose in the display cases. The letter of credit given to Lewis and Clark is the only one of its kind ever given by a President of the United States to an individual. It carried the credit of the United States Treasury for expenditures incurred.

Among the exhibits in the Memorial is the complete

Washington University School of Medicine and affiliated hospitals—Barnes Hospital, St. Louis Children's Hospital, McMillan Eye, Ear, Nose and Throat Hospital, and Oscar Johnson Institute.



1. Firmin Desloge Hospital (University Hospital, St. Louis University School of Medicine). 2. Shriners' Hospital for Crippled Children. 3. City Hospital. 4. Frisco Hospital. 5. Missouri Baptist Hospital. 6. DePaul Hospital. 7. St. Mary's Hospital (University Hospital, St. Louis University School of Medicine). 8. Jewish Hospital.



1. Mt. St. Rose Sanatorium (University Hospital, St. Louis University School of Medicine). 2. St. Ann's Maternity Hospital. 3. Evangelical Deaconess Hospital. 4. St. Louis County Hospital. 5. St. Anthony's Hospital. 6. Barnard Free Skin and Cancer Hospital. 7. Missouri Pacific Hospital. 8. St. Luke's Hospital.

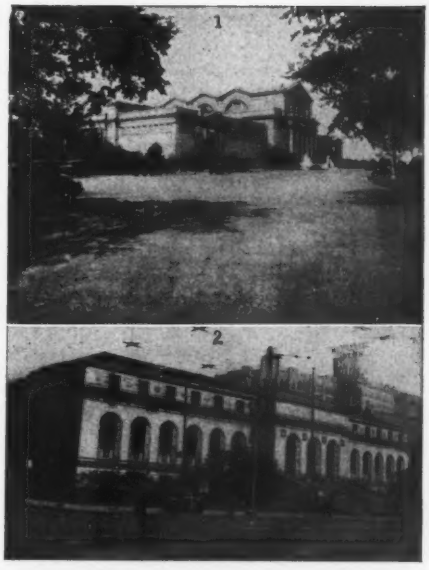
showing of the famous Lindbergh collection, including gifts, medals, trophies and souvenirs from a score of foreign countries and from thousands of sources.

LANDMARKS

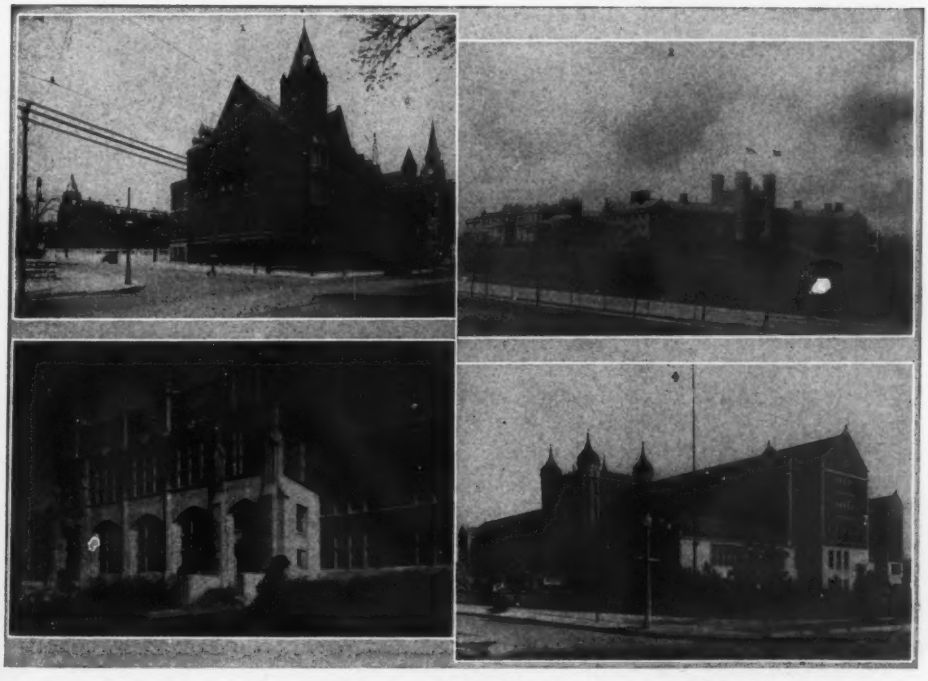
The Old Court House stands at the corner of Broadway and Market Street, a century-old historic spot on the steps of which in antebellum days slaves were auctioned along with other personal property. The stone auction block may still be seen, also the prison cells in the basement, and the courtroom in which Dred Scott's famous case for freedom was begun. At that time Missouri was the center of the seething discussion between North and South which soon after culminated in the Civil War.

This old landmark still stands, strong and sturdy, a tribute to the honest construction of its erectors. During recent years it has housed valuable old court records and the circuit and probate courts. Its ground formerly contained a whipping post, used in dispensing justice, and a granite boulder still marks the starting point of the old Boone Lick Trail over which traveled the pioneers to the West. The old court house was among the landmarks mentioned in Winston Churchill's novel, "The Crisis."

In the days preceding the Civil War, Ulysses S. Grant, who later commanded the Northern forces and finally became President of the United States, was a farmer near St. Louis and sold wood in the city. The cabin in which he lived, built of logs by Grant with his own hands, is still preserved and can be seen by visitors.



1. Art Museum. 2. Public Library.



1. St. Louis University. 2. Washington University. 3. Gallaudet School for the Deaf, generally considered the finest public school of its kind in the United States. 4. Roosevelt High School.

1. Union Station. 2. City Hall. 3. Municipal Courts Building. 4. Old Court House, from the steps of which slaves were sold in antebellum days. 5. Masonic Temple. 6. Missouri Theater Building, offices of Missouri State Medical Association and many physicians. 7. New Civil Courts Building. 8. Beaumont Medical Building.

The cabin stands today about a mile and a half from its original site, near the entrance to the country place of a wealthy St. Louisan, which is called Grant's Farm. The cabin was removed log by log and exhibited at St. Louis World's Fair, and with the same care was replaced on its present site. Surrounding it is a fence built of rifle barrels collected from battlefields of the Civil War.

MODERN DEVELOPMENTS

Near the city is the huge two million dollar Municipal Airport, one of the best and most completely equipped landing fields in the country, which was made famous as the starting point of Colonel Lindbergh's epochal flight. Extensive factories for the manufacture of standard planes and motors are in operation at the Airport.

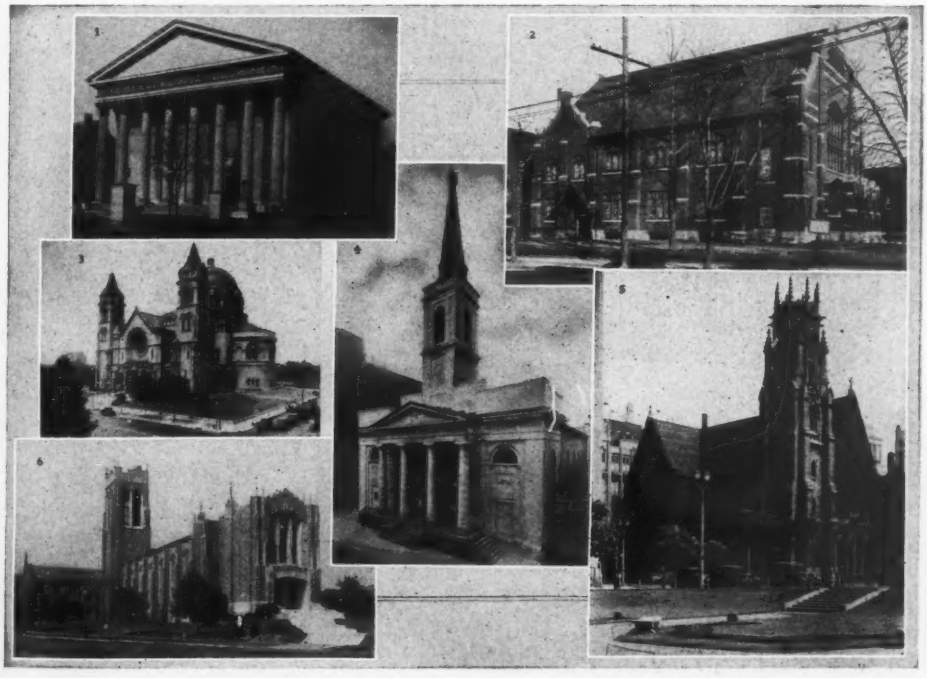
Among the modern buildings in St. Louis is the new Civil Court House recently completed at a cost of several million dollars. It is the tallest building in St. Louis and a fine example of modern architecture. The Bell Telephone Company has a new 31-story building, a monument of modern recessional construction. The Railway Exchange Building occupies an entire city block and is noted for the large area of floor space that it contains.

The shopping district of St. Louis cannot fail to intrigue the visitor, who will also find amusements of every nature. The largest and finest moving picture and other theaters in the world, the night clubs and the restaurants, will provide abundant entertainment. The residential section has row after row of palatial and comfortable homes with beautiful trees along great boulevards.

Shaw's Garden, founded in 1850 by Henry Shaw, a philanthropist, the Missouri Botanical Garden, ranks second only to the famous Kew Gardens of England. It contains the largest collection of plant life in the Western Hemisphere and is famous the world over for its wealth of botanical species and its beautiful floral displays. It comprises a city garden of about 75 acres, an out-of-town extension of more than 1,600 acres, and a tropical extension at Balboa, Panama.

At the city garden large conservatories are main-

Soldiers' Memorial in Aloe Plaza.



1. Temple Israel. 2. Grand Avenue Methodist Church. 3. New Cathedral. 4. Historic Old Catholic Church. The first church built in St. Louis was located on this site. 5. Christ Church, Catholic. 6. Memorial Presbyterian Church.

tained, containing a varied collection of tropical plants and providing for an almost continuous display of chrysanthemums, orchids, lilies and other blooming plants. Out-of-doors are to be found representative gardens of roses, irises, water lilies and collections of every other kind of plant which can be grown in this region. The orchid and chrysanthemum shows have established national reputation for the gorgeousness and rarity of their bloom and for the beauty and method of their display. Altogether, more than 11,000 species of plants from all climates and all parts of the globe are to be seen here. The Garden is open daily to the public and admission is free to all.

FOREST PARK

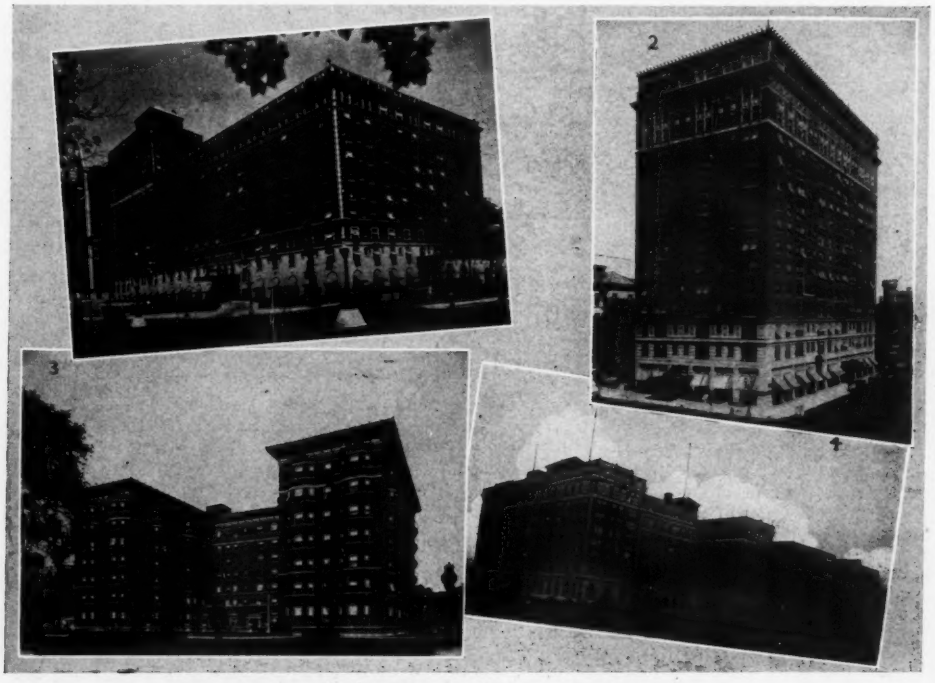
Forest Park, with its 1,400 acres, contains picnic grounds, tennis courts, baseball diamonds, soccer fields, a parade ground and three golf links. In it also are the Municipal Open Air Theater, the Art Museum, the Jefferson Memorial, and several other public buildings. There are lagoons for canoeing, miles of soft bridle paths for horseback riding, long serpentine roads for motoring, and hundreds of acres of velvety greensward.

The theater in Forest Park is the largest municipally owned theater in the world, rivaling in extent and bold conception the stately outdoor temples of ancient Greece. With new ornamentations and improvements being added each year, this playhouse has gradually been developed into the permanent concrete auditorium which it is today, with tier upon tier of seats accommodating 10,000 persons. Some idea of its popularity is obtained from the fact that on many occasions every seat is occupied and several thousand people, in addition, view the performances from the long pergolas in the rear.

In Forest Park is one of the chief zoological gardens of America. Experts concerned with the captivity of wild animals have come to St. Louis from all parts of the world to study the methods used here, and particularly to examine the unusual arrangement by which the animal dens and paddocks have been transformed into near to nature haunts. The Zoo contains more than 2,000 living creatures, including mammals, birds, fish, reptiles and amphibians, which have been collected from all parts of the globe. Here are to be seen the new monkey house, filled with simian life of every description, where trained monkeys go through their amusing antics every afternoon; the largest steel-enclosed bird cage in the world, with its fascinating variety of bird life; the swan lakes, peopled by a strange world of swimming birds; the new reptile house; and "Peacock Valley," with its chain of thirteen lakes teeming with aquatic life.

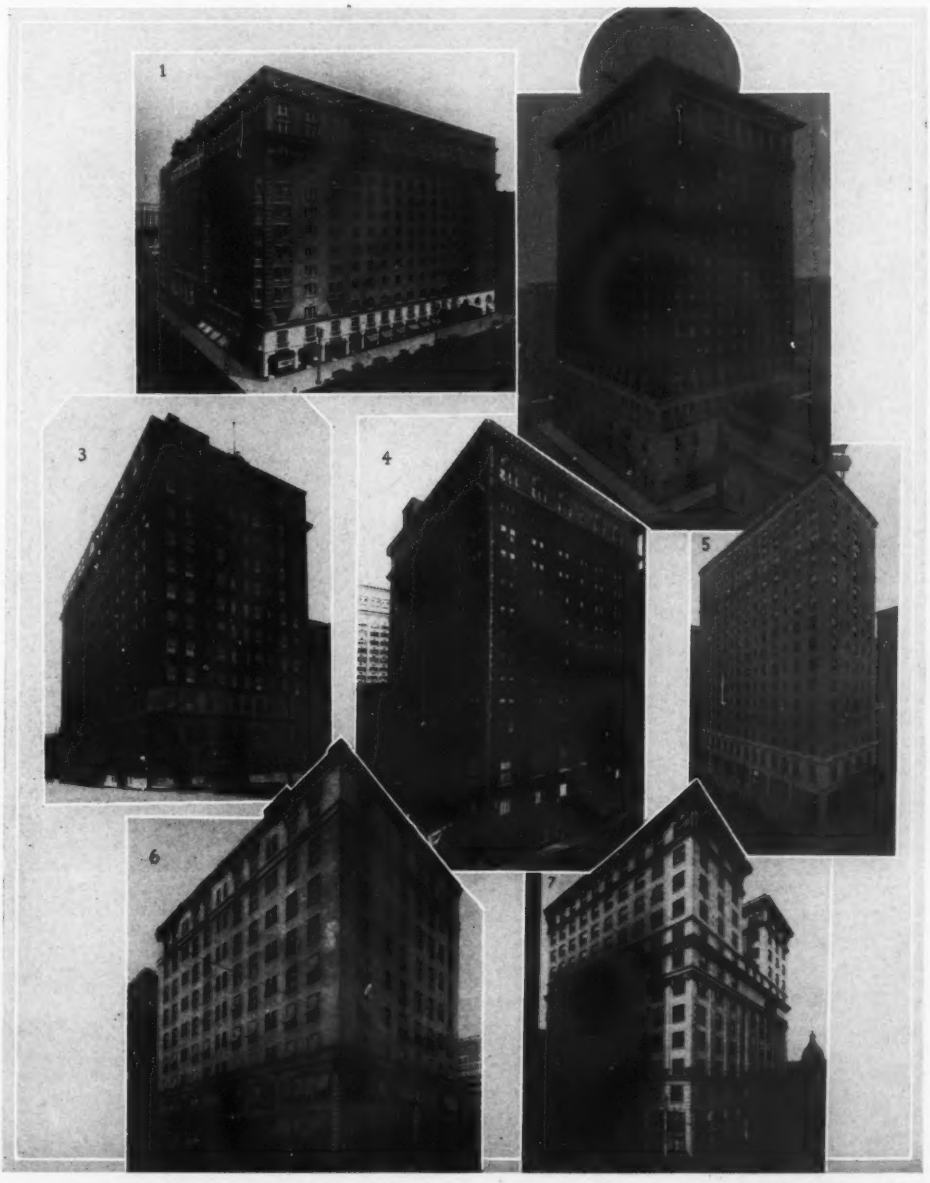
Huge steel and concrete structures house lions, tigers, leopards and other great cats; while in similar buildings, especially planned, are to be seen the elephants, hippopotamuses and other creatures. Deer of many varieties and roving animals of a hundred species are confined in ample steel-fenced yards.

The cageless bear pits are artificial rock dens with earth-filled fissures from which native shrubbery and evergreens grow. They are exact concrete reproductions

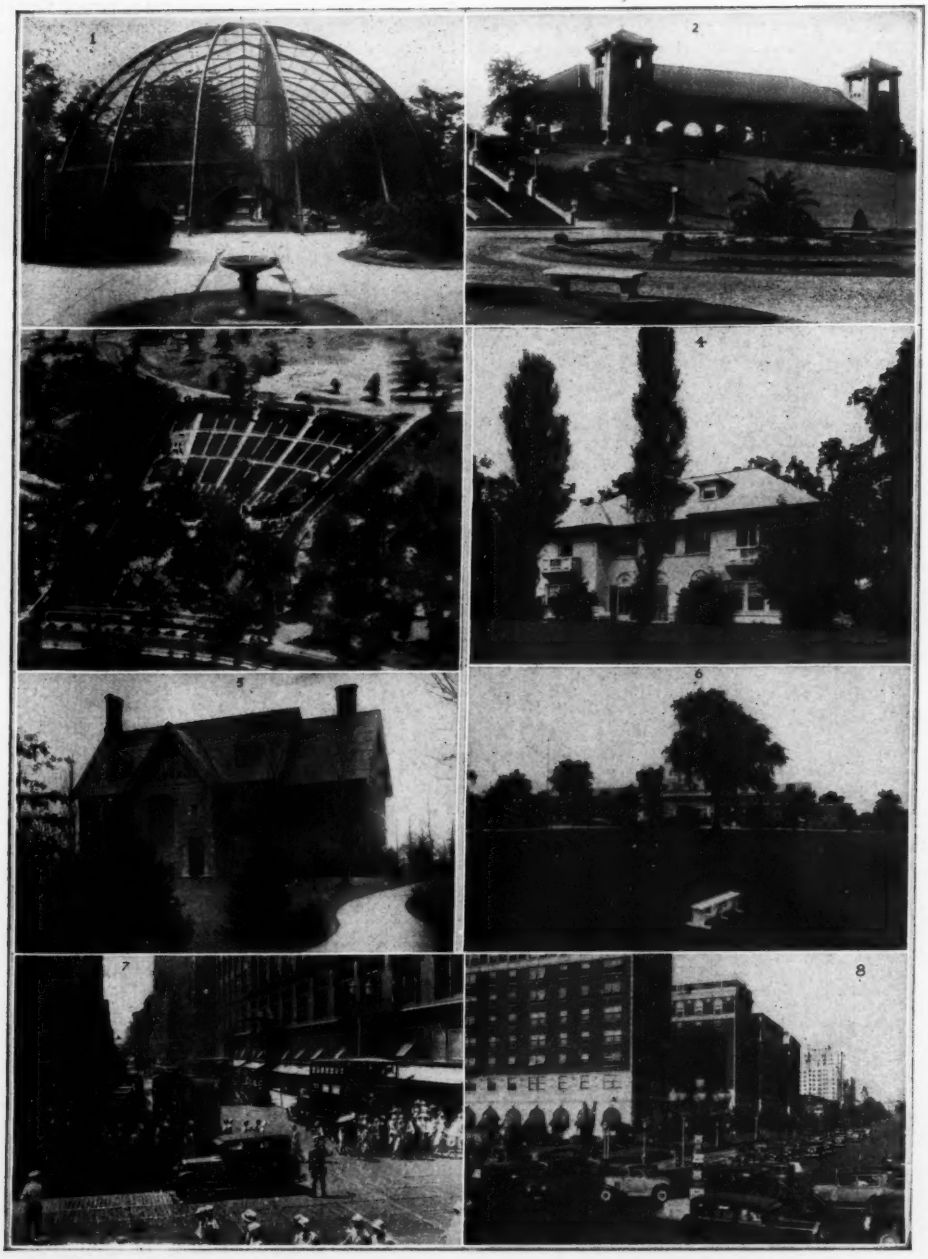


Some uptown hotels. 1. Coronado. 2. Melbourne. 3. Kings-Way. 4. Chase.

of limestone bluffs along the Mississippi River, from which detailed photographs and plaster casts were specially made as models. Dim caves serve as cool retreats for the bears, and rugged paths permit them to scale the rocks for a certain distance toward the overhanging crests.



Some downtown hotels. 1. Jefferson (General Headquarters). 2. Statler. 3. Claridge. 4. DeSoto. 5. Mark Twain. 6. Majestic. 7. American.



1. Bird cage at the Zoo in Forest Park, largest steel bird cage in the world. 2. Shelter House in Forest Park. 3. Municipal Outdoor Theater, Forest Park. 4 and 5. Typical Homes. 6. Bellerive Country Club, a typical country club of St. Louis. 7. Street scene in retail district, downtown. 8. Street scene, Laclede Avenue looking West.

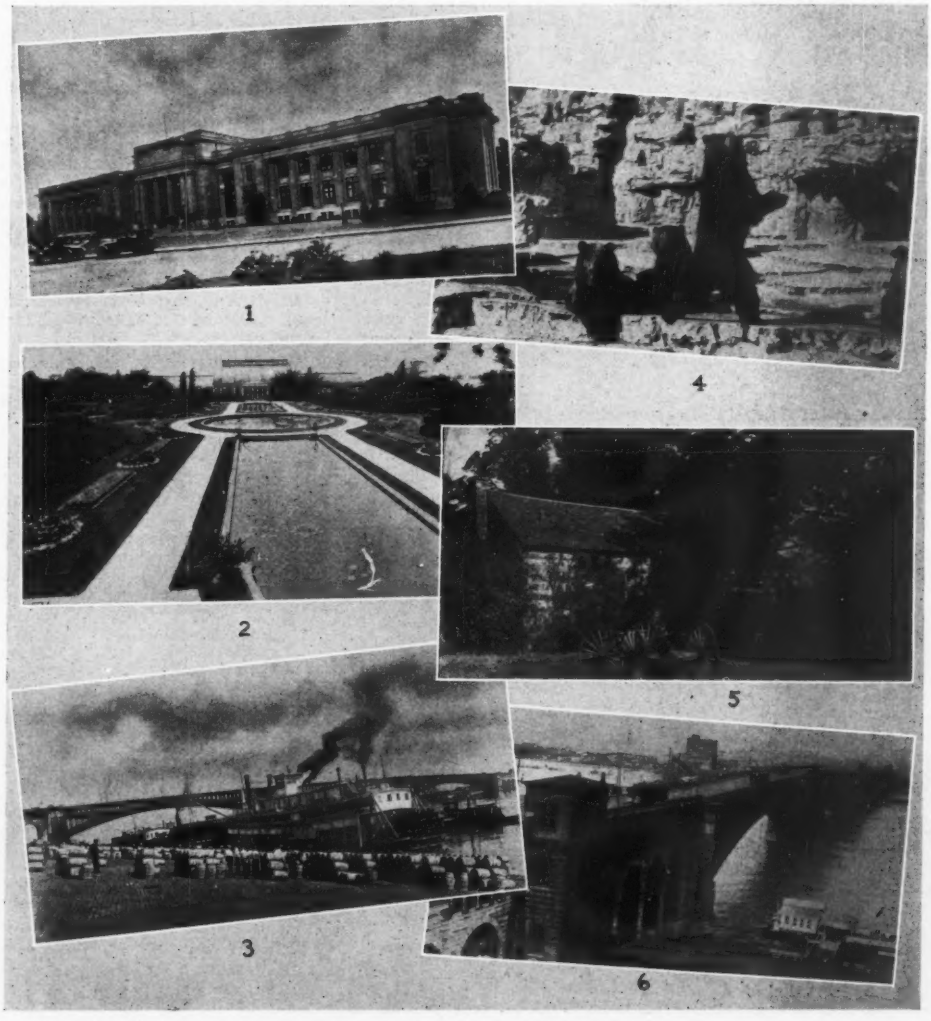
The Art Museum which was erected during the World's Fair as a permanent building, ranks as one of the four best art galleries in the United States. It contains rich exhibits of paintings, casts, sculpture, marbles, drawings, architecture and applied arts. The collection of Chinese bronzes, ceramics and paintings is one of the finest of its kind.

On Art Hill stands the heroic statue of St. Louis by Niehaus, at the base of which was enacted the most impressive ceremony modern St. Louis has witnessed, when the French Legion, on its visit here, dipped colors for the second time in history, honoring St. Louis as no other city in the world has been honored.

The St. Louis Symphony Orchestra, an assemblage of 80 artists of the first rank in American musical circles, is under the leadership of distinguished guest conductors chosen from the world's most noted artists. With its long and brilliant concert record, it ranks among the greatest musical organizations of this country.

CHURCHES

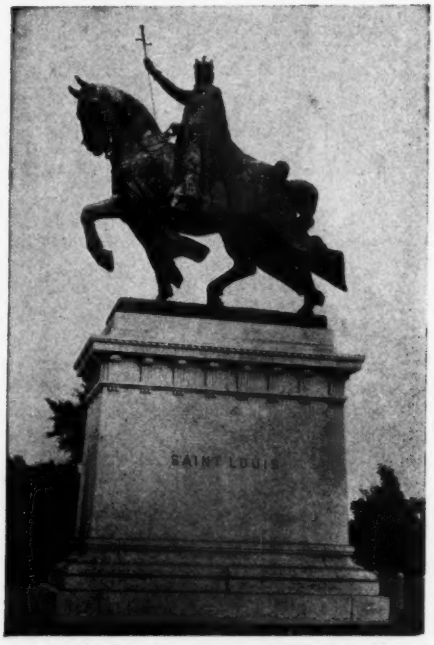
There are in St. Louis City and County 100 Catholic churches and 530 Protestant Evangelical churches, with a communicant membership of several hundred thousand; four Christian colleges and four theological seminaries. St. Louis is the international headquarters of



1. Jefferson Memorial. 2. Shaw's Gardens (Missouri Botanical Gardens). 3. Apple Time on the Levee. 4. Bears at the Zoo. 5. General Grant's Cabin. 6. Ead's Bridge.

three denominations and the state or regional headquarters of nine.

The Metropolitan Church Federation, organized in 1909, has coordinated the church work of sixteen denominations under jointly authorized leadership and carried on work impossible for a single church or denomination alone.



Statue of Saint Louis, erected on the crest of Art Hill, is the statue of Louis IX, King of France, a crusading king, who was the patron saint of Louis XV of France, after whom St. Louis was named.

The New Cathedral is the seat of the Catholic Church in the St. Louis Archdiocese. It is one of the largest and most magnificently furnished cathedrals in this country and compares favorably with the finest ecclesiastical structures of Europe. It was erected at a cost of three and a quarter million dollars. Its main altar represented an expenditure of $100,000 and its organ $50,000. The Old Cathedral occupies the site of the first church built in St. Louis, shortly after the landing of Laclede in 1764. Pope Gregory conferred favors on this old cathedral granted to no other church in the world except the Basilicas of Rome.

MUNICIPAL AUDITORIUM

The St. Louis Auditorium, where the Association meetings will be held, has all the massive dignity and benign power of a great rock temple dedicated to the people. Its walls can house a convention city. Soft colors and lights take the jangle out of convention nerves and soft padded avenues lead surreptitiously to three large assembly centers, the great music hall with its beautiful stage, the stupendous arena, and the expansive exposition hall reaching almost from front to back of the entire building, which is 493 feet over all.

Neatly woven into this three-point pattern is the ticket lobby, foyer, cafeteria and refreshment bar, four large assembly halls, with stage, smaller committee rooms and convenient appointments.

Through four aisle doors opening from the foyer, like mouths into Aladdin's treasure vault, you enter the beautiful music hall seating 3,500 people, a great place for the main convention program.

The entire building is air-conditioned. Air, temperature, light and seats are all comfort details worked out to the nth degree in this ultra modern convention building. A million cubic feet of fresh air per minute is introduced into 14 fan rooms, which convey it to every part of the building at the rate of 30 cubic feet per minute per person when the space is filled to capacity. The lighting system is up to the minute and the seats are the very latest in theatrical chair design.

Top—Algonquin Country Club, where Golf Tournament will be held.
Bottom—Creve Coeur Gun Club, where Trap and Skeet Shooting Tournament will be held.

HOTELS

The subtle art of making people feel at home is the studied concern of St. Louis hotels backed by one of the best hotel associations in the country. Reasonable rates, spacious lobbies, banquet halls and good food with excellent service support the truth of our axiom that "provision is the foundation of hospitality!" The majority of the hotels are within walking distance of the Auditorium.

MEDICAL ST. LOUIS

St. Louis is today one of the outstanding medical centers of

this country with unusual facilities for the care of the sick, for research into the cause and cure of disease, and for the instruction of medical students. It is proud of its two great medical schools, Washington University School of Medicine and St. Louis University School of Medicine.

The St. Louis Medical College, founded in 1842, was admitted as a department of Washington University in 1891. It was completely reorganized in 1910. In 1914, it moved into its new buildings facing Forest Park on the corner of Kingshighway Boulevard and Euclid Avenue. Several excellent hospitals, known as the Barnes Hospital group, are affiliated with it and for teaching purposes are integral parts of the School of Medicine. The Medical School has an excellent library and several museums and collections for teaching and investigation.

The School of Medicine of St. Louis University was established in 1837. The main building of the original Marion Sims College of Medicine was used by it until 1927, when the present medical buildings were erected. They are situated on Compton Hill, one of the highest points in the City of St. Louis. An excellent medical library, which has been enriched by several private collections, is housed in the south wing of the building. There are three closely associated hospitals.

In addition to the hospitals affiliated with the medical schools, there are numerous other excellent hospitals in St. Louis.

Fountain in Union Station Plaza.

A large airliner on the runway at Lambert-St. Louis Municipal Airport.

The St. Louis Medical Society was founded in 1835. It moved into its beautiful new $400,000 home at 3839 Lindell Boulevard on July 29, 1926. The auditorium has a seating capacity of seven hundred and there are several private meeting rooms, a large dining room and adjoining rooms for entertainment. A large, beautifully furnished lounge is also situated on the first floor. The library occupies the entire second floor and contains more than 30,000 volumes with 325 files of current journals and transactions in English, French and German, as well as a valuable collection of rare old medical books.

* * * * *

The State of Missouri, the City of St. Louis, and particularly the St. Louis Medical Society and the St. Louis County Medical Society, are ready and eager to welcome and entertain the Southern Medical Association.

OFFICERS, ST. LOUIS MEDICAL SOCIETY

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First Vice-President—Dr. William G. Becke.
Second Vice President—Dr. Grace Scholz Mountjoy.
Treasurer—Dr. Edwin C. Funsch.
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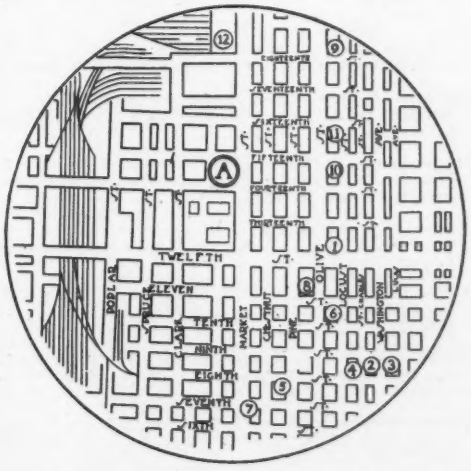
STREET MAP OF DOWNTOWN ST. LOUIS



(A) Municipal Auditorium. (1) Jefferson Hotel (General Headquarters). (2) Statler Hotel. (3) Lennox Hotel. (4) Mayfair Hotel. (5) Mark Twain Hotel. (6) DeSoto Hotel. (7) American Hotel. (8) Majestic Hotel. (9) Claridge Hotel. (10) Warwick Hotel. (11) Y.M.C.A. (12) Union Railroad Station.

Pulliam, Dr. Jerome I. Simon, Dr. Garold V. Stryker, Dr. Henry P. Thym, Dr. Paul F. Titterington, Dr. Joseph C. Peden, Dr. Victor E. Scherman.

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Secretary—Dr. Garold V. Stryker.

Executive Committee—Dr. Joseph C. Peden, Dr. Alphonse McMahon and Dr. Neil S. Moore.

Finance—Dr. Llewellyn Sale, Chairman; Dr. James B. Brown, Dr. Irving H. Boemer, Dr. Joseph E. Glenn and Dr. Arthur Gundlach.

Program—Dr. Daniel L. Sexton, Chairman; Dr. G. O. Broun, Dr. T. K. Brown, Dr. Wendell G. Scott and Dr. O. R. Sevin.

Entertainment—Dr. E. Vernon Mastin, Chairman; Dr. Harry L. Alexander, Dr. A. D. Carr, Dr. A. H. Diehr and Dr. Maurice J. Lonsway.

Membership—Dr. Anthony B. Day, Chairman; Dr. William J. Gallagher, Dr. O. P. Hampton, Jr., Dr. Paul C. Schnoebelen and Dr. Cleveland H. Shutt.

Hotels—Dr. J. Hoy Sanford, Chairman; Dr. J. Paul Altheide, Dr. George T. Gafney, Dr. Clinton W. Lane and Dr. George F. Rendleman.

Radio—Dr. Joseph A. Hardy, Jr., Chairman; Dr. Oliver Abel, Dr. Armand D. Fries, Dr. B. Y. Glassberg and Dr. Roland S. Kieffer.

Publicity—Dr. Arthur W. Proetz, Chairman; Dr. Peter G. Danis, Dr. John McH. Dean, Dr. Clyde P. Dyer and Dr. R. O. Muether.

Alumni Reunions—Dr. Bernard J. McMahon, Chairman; Dr. Willard Bartlett, Jr., Dr. Joseph P. Costello, Dr. Arthur O. Fisher and Dr. E. L. Keys.

Fraternity Luncheons—Dr. James L. Mudd, Chairman; Dr. L. T. Furlow, Dr. R. V. Powell, Dr. A. E. Strauss and Dr. Carl F. Vohs.

Scientific Exhibits—Dr. O. P. J. Falk, Chairman; Dr. Millard F. Arbuckle, Dr. Vincent L. Jones, Dr. Matthew W. Weis and Dr. Nathan A. Womack.

Hobbies—Dr. Paul F. Titterington, Chairman; Dr. James B. Costen, Dr. C. H. Eyermann, Dr. Paul F. Fletcher and Dr. L. R. Sante.

Information—Dr. F. D. Gorham, Chairman; Dr. E. Lee Dorsett, Dr. J. Lewis Hutton, Dr. Victor E. Scherman and Dr. George H. Schoetker.

Transportation—Dr. J. William Thompson, Chairman; Dr. Hollis N. Allen, Dr. Sim F. Beam, Dr. R. B. H. Gradwohl and Dr. Claude D. Pickrell.

Golf—Dr. Leo Bartels, Chairman; Dr. Fred W. Bailey, Dr. Cecil M. Charles, Dr. Oliver C. Pfeifer and Dr. Jerome I. Simon.

Trap Shooting—Dr. John W. Hotz, Chairman; Dr. David L. Penney, Co-Chairman; Dr. A. M. Alden, Dr. A. N. Arneson and Dr. Leo A. Will.

Women Physicians—Dr. Emma Phelan, Chairman; Dr. Grace Scholz Mountjoy, Co-Chairman; Dr. Mary A. McLoon and Dr. Katherine M. Schaaf.

Ladies' Entertainment—Mrs. M. J. Glaser, Chairman, and Mrs. August A. Werner, Co-Chairman.

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PROGRAM, SOUTHERN MEDICAL ASSOCIATION

Thirty-Fifth Annual Meeting, St. Louis, Missouri

November 10-13, 1941

PROGRAM

The following general and clinical sessions, sections, allied and visiting associations, compose the program for the St. Louis meeting. The complete preliminary program of each will be found in this order on succeeding pages, following the program of entertainment, scientific exhibits and miscellaneous activities:

General Public Session (Monday night).
General Session (Tuesday night).
Clinical Sessions, St. Louis Day (Monday afternoon and Tuesday forenoon).
Clinical Session (Tuesday afternoon).
Section on Medicine.
Section on Gastroenterology.
Section on Neurology and Psychiatry.
Section on Pediatrics.
Section on Pathology.
Section on Radiology.
Section on Dermatology and Syphilology.
Section on Allergy.
Section on Surgery.
Section on Bone and Joint Surgery.
Section on Gynecology.
Section on Obstetrics.
Section on Urology.
Section on Proctology.
Section on Railway Surgery.
Section on Ophthalmology and Otolaryngology.
Section on Anesthesia.
Section on Medical Education and Hospital Training.
Section on Public Health.
American Public Health Association, Southern Branch.
National Malaria Committee.
American Society of Tropical Medicine and American Academy of Tropical Medicine.
Woman's Auxiliary to the Southern Medical Association.

PROGRAM OF ENTERTAINMENT

TUESDAY, NOVEMBER 11, 9:00 p. m.—Reception for President, members and guests of the Southern Medical Association, followed by a Grand Ball, Jefferson Hotel, Gold Room.

Golf and Trap Shooting. See page 1211 for details.

Entertainment for Visiting Ladies

Mrs. Martin J. Glaser, Chairman, and Mrs. August A. Werner, Co-Chairman for Ladies' Entertainment, announce the following activities and entertainment for visiting ladies:

MONDAY, NOVEMBER 10—Registration at Jefferson Hotel, Mezzanine Floor, beginning at 10:00 a. m.

MONDAY, NOVEMBER 10, 12:00 noon to 2:00 p. m.—Informal reception, Jefferson Hotel. The members of the Woman's Auxiliary to the St. Louis Medical Society will greet the visiting ladies attending the Southern Medical Association meeting.

MONDAY, NOVEMBER 10, 3:00 p. m.—Tour of the buildings of special interest on the campus of Washington University: Woman's Building, Ridgely Hall, January Hall, Law Library, and others. Private cars to convey visiting ladies will leave Jefferson Hotel at 2:15 p. m., Locust Street entrance.

MONDAY, NOVEMBER 10, 3:30 p. m.—Organ music in Graham Memorial Chapel, Washington University, under the direction of Miss Beatrice E. Hays.

MONDAY, NOVEMBER 10, 4:00 p. m.—Chancellor George Throop, Washington University, and Mrs. Throop, will be at home to the visiting ladies and their escorts at the Chancellor's residence, 6510 Ellenwood Avenue. Private cars will return visiting ladies to their hotels following this reception.

MONDAY, NOVEMBER 10, 8:00 p. m.—General Public Session, Jefferson Hotel, Gold Room.

TUESDAY, NOVEMBER 11, 8:00 a. m.—Executive Board Meeting and Breakfast, Woman's Auxiliary to the Southern Medical Association, Jefferson Hotel.

TUESDAY, NOVEMBER 11, 10:00 a. m.—Annual Meeting (First Session), Woman's Auxiliary to the Southern Medical Association, Jefferson Hotel.

TUESDAY, NOVEMBER 11, 12:30 p. m.—Annual Luncheon, Woman's Auxiliary to the Southern Medical Association, followed by Fashion Show and Music, Chase Hotel, Starlight Roof. Luncheon tickets, $1.75.

TUESDAY, NOVEMBER 11, 8:00 p. m.—General Session of the Southern Medical Association (President's Night) followed by the President's Reception and Grand Ball, Jefferson Hotel, Gold Room.

WEDNESDAY, NOVEMBER 12, 9:30 a. m.—Annual Meeting (Concluding Session) Woman's Auxiliary to the Southern Medical Association, Jefferson Hotel.

WEDNESDAY, NOVEMBER 12, 1:00 p. m.—Luncheon at St. Louis Woman's Club, 4600 Lindell Boulevard. Luncheon tickets, $1.50. Following the luncheon, busses will leave for conducted tour—Art, Forest Park Area, Missouri Botanical Gardens, and other points of interest. Tour tickets, $1.00.

WEDNESDAY, NOVEMBER 12, 4:00 p. m.—Tea given by the Woman's Club of St. Louis University School of Medicine at the home of Dr. and Mrs. Louis Rassieur, Topping Road, St. Louis County. Busses on the tour will convey visiting ladies to the tea and return them to their hotels.

GOLF—Any ladies wishing to play golf may do so by notifying the Golf Chairman, Mrs. William M. James.

Information Committee

Members of the Information Committee will be in the lobbies of the principal hotels to give any information and render any service possible to visiting ladies.

THE ST. LOUIS MEDICAL SOCIETY

The St. Louis Medical Society, host to the annual meeting of the Southern Medical Association, has a long and enviable reputation in the history of American medicine. The records of its founding in 1835 and the minutes of its early meetings are still in existence. The dozen practitioners, who at that time formed an outpost of progressive medical thought, were well educated and well trained, most of them in the European centers, some of them in Ohio and Kentucky. Their discussions centered about such problems as the miasmas, childhood fever, diphtheria, and prominently, delirium tremens. It was at their instigation that the early medical schools were formed, which through a series of metamorphoses and reincarnations became the two present great medical schools, Washington University and St. Louis University.

On the rolls of the St. Louis Medical Society are found many well-known names of authors and investigators. It has a membership of 1,101.

The first meeting place, the "Masonic Hall" of that period, was supplanted by increasingly capacious quarters until today

the Society is housed in its own magnificent modern building at 3839 Lindell Boulevard. Here under the auspices of the President and his local committees, it will extend the hospitality of the Society to its welcome guests.

The officers of the Society are: Dr. Joseph C. Peden, President; Dr. William G. Becke, First Vice-President; Dr. Grace Scholz Mountjoy, Second Vice-President; Dr. Edwin C. Funsch, Treasurer; Dr. Victor E. Scherman, Secretary; Dr. Peter G. Danis, Editor; Dr. Leslie D. Cassidy, Associate Editor; and Miss Aileen M. Patton, Assistant Secretary.

ST. LOUIS COUNTY MEDICAL SOCIETY

In addition to the St. Louis Medical Society there is a St. Louis County Medical Society for the physicians living in St. Louis County outside the independent city of St. Louis. The County Society has a membership of 229 and is cooperating with the host society in making the St. Louis meeting a great success. The officers of the St. Louis County Medical Society are: Dr. Eugene R. Brown, President; Dr. Freeman L. Finley, Vice-President; Dr. William Harold Bailey, Secretary; Dr. W. F. O'Malley, Treasurer; and Dr. Clyde P. Dyer, Editor.

WOMEN PHYSICIANS

The twenty-seventh annual meeting and dinner for Women Physicians of the Southern Medical Association will be held at St. Louis, Wednesday, November 12, at 6:30 p. m. at the Jefferson Hotel. Dr. Nora D. Dean, Louisville, Kentucky, Chairman of Women Physicians of the Southern Medical Association, will preside.

On Tuesday, November 11, a courtesy luncheon for the visiting Women Physicians will be held at the Jefferson Hotel at 12:30 p. m.

Women Physicians are cordially invited to take part in any and all of the special entertainment arranged for visiting ladies.

Dr. Emma Phelan, 5321 Bartmer Avenue, St. Louis, is Chairman, and Dr. Grace Scholz Mountjoy, 4439 Floriss Place, St. Louis, is Co-Chairman for Women Physicians.

RADIO

The Association will be on the air during the St. Louis meeting from the local radio stations, the program subjects and speakers now being developed.

CONFERENCE OF PRESIDENTS, PRESIDENTS-ELECT, SECRETARIES AND EDITORS

Monday, November 10, 5:30 p. m.

Jefferson Hotel, Ivory Room

The Presidents, Presidents-Elect and Secretaries of the state medical associations of the states comprising the Southern Medical Association, and Editors of state medical journals in these states, are cordially invited to a get-together dinner meeting, an informal Round Table Conference on matters of mutual interest, St. Louis, Monday, November 10, 5:30 p. m., Jefferson Hotel. The theme of the round table discussion will be "Essential Elements in Medical Leadership." The Presidents, Presidents-Elect, Secretaries and Editors of states not in the Southern Medical Association but touching and near to Missouri—Illinois, Indiana, Iowa, Nebraska and Kansas—have been invited to attend and participate in this Conference. The Conference will adjourn in time for the General Public Session of the Southern Medical Association at 8:00 p. m.

The Conference is an independent group, has no connection in an official way with the Southern Medical Association, the Association meeting offering a desirable time and place for holding the Conference. Similar conferences were held at Baltimore in 1936, New Orleans in 1937, Oklahoma City in 1938, Memphis in 1939 and Louisville in 1940. Dr. Harvey F. Garrison, Sr., Jackson, Mississippi, is Chairman.

PILGRIMAGE TO GRAVE OF WILLIAM BEAUMONT

The annual pilgrimage of the St. Louis Medical Society to the grave of Dr. William Beaumont in Bellefontaine Cemetery will be made on Armistice Day, Tuesday, November 11. The brief services at the grave to commence at 12:15 noon. Cars for the cemetery will leave the Municipal Auditorium, Fourteenth Street Entrance, between 11:30 a. m. and 12:00 noon. Those desiring to go on the pilgrimage will have time to get lunch afterward and attend the afternoon sessions.

The occasion is the one hundred and fifty-sixth birthday anniversary of Dr. Beaumont. The annual pilgrimage was instituted in 1935, the first pilgrimage being made on November 21, 1935, during the meeting of the Southern Medical Association in St. Louis. Although November 21 is the birth date of Dr. Beaumont, the pilgrimage this year will be held on Armistice Day in order that the Southern Medical Association may again have a part in the pilgrimage exercises. In addition to the St. Louis Medical Society and the Southern Medical Association, other organizations will be officially represented in this pilgrimage. Dr. Arno B. Luckhardt, Professor of Physiology, University of Chicago, Chicago, will deliver the short Memorial Address.

Those going by auto should drive west to Kingshighway, then north to the Cemetery gate. The Cemetery may also be reached by the Bellefontaine Street cars or the North Kingshighway buses.

Dr. Robert E. Schlueter, 508 North Grand Boulevard, St. Louis, is Chairman of the Committee in charge of the pilgrimage.

DIPLOMATES OF THE NATIONAL BOARD OF MEDICAL EXAMINERS

Diplomates of the National Board of Medical Examiners in attendance upon the Southern Medical Association meeting will meet for luncheon Tuesday, November 11, 12:15 noon at the Jefferson Hotel, St. Louis. Dr. O. P. Hampton, Jr., 3720 Washington Boulevard, St. Louis, Chairman of the Subcommittee for St. Louis of the Missouri Committee, is Chairman for the luncheon.

ALUMNI REUNIONS

Wednesday, November 12, 7:00 p. m.

Wednesday evening has been set aside for Alumni Reunions. All schools will meet together for dinner at the Jefferson Hotel, Gold Room. During and following the dinner there will be a program of songs, instrumental music and entertainment of different kinds. While the evening is yet young the various school groups, under the leadership of the local Chairman, will retire to individual rooms for such further activities as each school may wish. Dr. Bernard J. McMahon, 634 North Grand Boulevard, St. Louis, is Chairman of the Alumni Reunions Committee.

Here follow the names of the schools for which arrangements have been made for meeting rooms, following the dinner, with the name and the address of the local physician who will act for each school group:

Washington University School of Medicine, St. Louis, A. O. Fisher, 3720 Washington Boulevard.

St. Louis University School of Medicine, St. Louis, Joseph P. Costello, 4952 Maryland Avenue.

University of Arkansas School of Medicine, Little Rock, L. Vincent Gorilla, 3115 South Grand Boulevard.

University of Oklahoma School of Medicine, Oklahoma City, Dee W. Eades, 6639 Virginia Avenue.

University of Texas Faculty of Medicine, Galveston, Grayson Carroll, 609 Humboldt Building.

University of Louisville School of Medicine, Louisville, Marshall G. Seibel, 626 Beaumont Medical Building.

University of Tennessee College of Medicine, Memphis, O. P. Hampton, Jr., 3720 Washington Boulevard.

Vanderbilt University School of Medicine, Nashville, Andrew B. Jones, 3720 Washington Boulevard.

Tulane University School of Medicine, New Orleans, Joseph Hoy Sanford, 418 Beaumont Medical Building.

Emory University School of Medicine, Atlanta, Leonard T. Furlow, University Club Building.

University of Virginia School of Medicine, Charlottesville, Albert C. Stutsman, 539 North Grand Boulevard.

Medical College of Virginia, Richmond, M. Pinson Neal, University of Missouri School of Medicine, Columbia, Mo.

Johns Hopkins University School of Medicine, Baltimore, M. Hayward Post, 524 Metropolitan Building.

University of Pennsylvania School of Medicine, Philadelphia, Lynn Krause, 3720 Washington Boulevard.

University of Illinois College of Medicine, Chicago, Hyman I. Spector, 622 University Club Building.

Harvard University Medical School, Boston, Arthur E. Strauss, 601 Humboldt Building.

FRATERNITY LUNCHEONS

Wednesday, November 12, 12:30 noon

All fraternity luncheons will be held Wednesday noon. The names of the fraternities that will have luncheons are here given with the name and address of the St. Louis physician who will represent each group and the place where the luncheon will be held. Dr. James L. Mudd, 634 North Grand Boulevard, St. Louis, is Chairman in Charge of Fraternity Luncheons. Arrangements will be made for other fraternities not listed if they wish a luncheon and the Chairman is notified.

Alpha Kappa Kappa, Daniel L. Sexton, University Club Building, Hotel Jefferson, Ivory Room.

Nu Sigma Nu, C. M. Charles, Metropolitan Building, Hotel Jefferson, Dining Room 7.

Phi Beta Pi, Duff Allen, Lister Building, Hotel Jefferson, Gold Room.

Phi Chi, George Carroll, University Club Building, place to be announced later.

Phi Rho Sigma, Robert Britt, Missouri Theater Building, Hotel Jefferson, Crystal Room.

Phi Delta Epsilon, Max Franklin, Missouri Theater Building, place to be announced later.

TRANSPORTATION

Excellent transportation facilities make St. Louis one of the most accessible cities in the United States whether the mode happens to be by rail, air line or highway.

Nineteen trunk-line railroads, on which are many streamliners, have chosen this city as the so-called "hub" of operations. There will be no special trains nor special convention rates available for the St. Louis meeting, the present low round trip rate of 2½c a mile each way, good in pullman, with a limit of thirty days being comparable to special train rates in the past.

To air-minded physicians St. Louis is a veritable paradise in that five big air lines, American, Chicago and Southern, Eastern, Mid-Continent, and Transcontinental and Western Air, give the city frequent and convenient service. Those living on terminals of the various air transportation companies are afforded an excellent opportunity for saving time in a most pleasant and reasonable way.

The area about St. Louis is considered excellent highway country in that not only in Missouri but in all neighboring states splendid systems of roads are maintained in good condition. To enhance the pleasure of driving over these excellent roads are the scenic points that are to be observed in traveling to St. Louis from any direction, particularly from the South.

HOTEL ACCOMMODATIONS

St. Louis has ample facilities to accommodate every physician desiring to attend the meeting. The Jefferson, general hotel headquarters, has announced that it has under reservation all its available guest rooms. Other first-class downtown hotels with available accommodations are: Statler, DeSoto, Mayfair, Mark Twain, Lennox, Claridge, American, Majestic and Warwick—all within comfortable walking distance from the Municipal Auditorium. First-class uptown hotels with accommodations available are: Coronado, Melbourne, Park Plaza, Chase, Kings-Way, Gatesworth, Fairgrounds, Forest Park and Roosevelt. All requests for reservations should go to HOTEL COMMITTEE, Southern Medical Association, Dr. J. Hoy Sanford, Chairman, 910 Syndicate Trust Building, St. Louis, Missouri. In writing for accommodations be sure to state price and type of accommodations desired and time of arrival.

LUNCHEON CLUBS

The following luncheon clubs of St. Louis extend a most cordial invitation to all members in attendance upon the Southern Medical Association meeting who are members of these clubs in their home city to have lunch with them:

Rotary Club, Thursday, November 13, 12:00 noon, Statler Hotel.

Kiwanis Club (downtown), Thursday, November 13, 12:15 noon, Statler Hotel.

Lions Club (downtown), Wednesday, November 12, 12:15 noon, Statler Hotel.

Cooperative Club, Wednesday, November 12, 12:00 noon, Statler Hotel.

Executives' Club, Tuesday, November 11, 12:15 noon, Statler Hotel.

Optimist Club, Friday, November 14, 12:00 noon, Statler Hotel.

Civitan Club, Friday, November 14, 12:15 noon, Statler Hotel.

TECHNICAL EXHIBITS

Municipal Auditorium

At the St. Louis meeting may be expected only the highest type group of technical, sometimes called commercial, exhibits attended by a group of specialized and courteous representatives who are concerned only with being of service to those physicians attending the meeting.

A policy adopted two years ago for making the exhibits more worth while has been generally accepted by the various commercial houses and personnel of the various booths will be found willing at every turn to keep the exhibits on a dignified plane.

The policy is concerned with (a) *selling*, (b) *samples* and (c) *souvenirs* and for clarification purposes we wish to expound briefly on these phases in the following short explanations: (a) The atmosphere of the exhibit is to be that of show and demonstration and not of selling. Should a physician wish to purchase an item on display it is permissible for the exhibitor to take his order for the item either for delivery from the booth or to be sent later—the technical exhibits are for the benefit of the attending physicians. (b) Samples and literature may be displayed within the exhibit and may be given out at the exhibit when the desire for them is indicated. It is permissible for those calling at exhibits to have their names taken for samples and literature to be sent from the home office of the exhibitor. (c) Souvenirs of any description cannot be given away at any exhibit or at any point in the Auditorium.

The object is to make the Technical Exhibits more definitely a scientific and educational part of the Southern Medical Association meetings and therefore worth definitely more to attending physicians.

Be sure to visit the Technical Exhibits.

See page 1212 for names of exhibit firms.

GENERAL HEADQUARTERS

Registration, Meeting Rooms, Exhibits, Information, Mail, Etc.

Municipal Auditorium

The General Headquarters (Registration, Information, Mail, Etc.), located at the Municipal Auditorium, will be open on Monday, November 10, from 12:00 noon until 6:00 p. m. and on Tuesday, Wednesday and Thursday, November 11-13, from 8:00 a. m. until 6:00 p. m. Here will be issued badges and programs, and matters concerning dues, changes of address, errors, etc., will be given attention.

The Information Bureau and Convention Post Office will be in connection with the Registration Bureau. Competent persons will be in charge to give any information or serve the physicians in any way possible. Ask anything you wish to know.

Be sure to register before attending the sessions.

Members of the Association are requested to bring their membership receipt (blue) card and present it when registering. This will greatly facilitate the registration.

HOBBY EXHIBITS

Municipal Auditorium

In addition to the usual scientific activities of the Association, there is to be at St. Louis a Hobby Exhibit. A delightful diversion from medicine to physicians' playthings is assured by this exhibit of physicians who are amateur artists, sculpturers, photographers, collectors, *et cetera*. Dr. Paul F. Titterington, 508 North Grand Boulevard, St. Louis, is Chairman of the Hobby Exhibit. Here follow the names of the physicians who, at the time this program went to press, had offered some of their hobby work for the exhibit:

HAROLD A. BULGER, St. Louis, Mo.: Early Maps of the South.

JOSEPH D. CIERI, St. Louis, Mo.: Wood Carving.

C. E. COLGATE, Webster Groves, Mo.: Indian Craftwork.

E. LEE DORSETT, St. Louis, Mo.: Nautical Instruments.

ETHEL C. DUNHAM, Washington, D. C.: Water Color Paintings.

EDWIN C. ERNST, St. Louis, Mo.: American Rockies in Montana—Elk and Grizzly Bear Hunt on Horseback.

J. O. FITZGERALD, JR., Richmond, Va.: Photographs.

LESLIE H. FRENCH, Washington, D. C.: Photographs.

WILLIAM D. GILL, San Antonio, Tex.: Paintings in Oil and Water Color Sketches.

O. S. JONES, St. Louis, Mo.: Military Medals.

FRED A. KRAMER, St. Louis, Mo.: Photographs of Model Train Exhibit.

JESSHILL LOVE, Louisville, Ky.: Photographs and Scrapbook (Plywood).

EDWIN P. MEINERS, St. Louis, Mo.: Butterflies, Moths and Other Insects.

HUGH McCULLOCH, St. Louis, Mo.: Meissen Porcelaine Figurines.

ARTHUR W. PROETZ, St. Louis, Mo.: Photographs.

FREDERICK O. SCHWARTZ, St. Louis, Mo.: Paintings in Oil.

A. THORNTON SCOTT, Lexington, Ky.: Photographs.

FRANCIS G. SPEIDEL, Washington, D. C.: Cartoons.

PAUL F. TITTERINGTON, St. Louis, Mo.: Pictures of Indian Burials and Pathological Indian Bone Specimens.

CARROL C. TURNER, Memphis, Tenn.: Photographs.

SCIENTIFIC EXHIBITS

Municipal Auditorium

Exhibits will be open Monday, November 10, from 12:00 noon until 6:00 p. m., and Tuesday, Wednesday and Thursday, November 11-13, from 8:00 a. m. until 6:00 p. m. In this Preliminary Program the exhibits are listed alphabetically. In the Official Program they will be arranged according to scientific subjects. Here follow the scientific exhibits offered up to the time this program went to press.

WM. MILTON ADAMS, Memphis, Tenn.: Plastic Surgery.

WILLIAM ALLAN, Wake Forest College, Bowman Gray School of Medicine, Winston-Salem, N. C.: The Prevention of Hereditary Defects That Wreck Childhood.

AMERICAN COMMITTEE ON MATERNAL WELFARE, THE, Chicago, Ill.: Objectives and Achievements of the Committee.

AMERICAN MEDICAL ASSOCIATION, Council on Foods and Nutrition, Chicago, Ill.: Nutritionally Improved Flour.

AMERICAN SOCIETY FOR THE CONTROL OF CANCER, Missouri State Committee, Louis H. Jorstad, Chairman, St. Louis, Mo.: Fight Cancer with Knowledge.

AMERICAN SOCIETY OF CLINICAL PATHOLOGISTS, Chas. L. Klenk, St. Louis, Mo.: Work of the Clinical Pathologist, Both in the Community and on a National Scale.

WM. WILLIS ANDERSON, Emory University School of Medicine, Atlanta, Ga.: Lung Cysts in Children.

WOOLFOLK BARROW, FRANCIS M. MASSIE and W. H. PENNINGTON, Lexington, Ky.: Acute Cholecystitis.

WILLIAM BICKERS, Medical College of Virginia, Richmond, Va.: Uterine Motility.

VILRAY P. BLAIR, L. T. BYARS and SHERWOOD MOORE, Washington University School of Medicine, St. Louis, Mo.: Adamantinomas and Other Central Tumors and Cysts of the Jaw Bones.

LOUIS W. BRECK and W. COMPERE BASOM, El Paso, Tex.: Fractures in Children.

ADDISON G. BRENIZER, Charlotte, N. C.: The Last Method of Ureteral Transplantation: Evolution of Ureteral Transplantation.

RALPH BOWEN, Houston, Tex.: The Story of the Asthmatic Child.

G. V. BRINDLEY, M. W. SHERWOOD and A. C. SCOTT, JR., Scott and White Hospital, Temple, Tex.: Carcinoma of the Colon: Factors Affecting Its Cure.

BRITISH LIBRARY OF INFORMATION, New York, N. Y.: Health and War in Britain.

GORONWY O. BROUN and RAYMOND A. MEZERA, St. Louis University School of Medicine, St. Louis, Mo.: Epidemiology of Encephalitis.

JAMES BARRETT BROWN and FRANK McDOWELL, Washington University School of Medicine, St. Louis, Mo.: Compound Injuries of the Face and Jaws.

CANCER COMMISSION OF THE STATE OF MISSOURI, St. Louis, Mo.: Results of the First Year's Operation of the Ellis Fischel State Cancer Hospital, May 1940-May 1941.

CHILDREN'S BUREAU, U. S. Department of Labor, Washington, D. C.: Care of Children with Heart Disease.

PETER G. DANIS and WENDELL H. GRIFFITH (Ph.D.), St. Louis University School of Medicine, St. Louis, Mo.: Study of the Similarity of Hepatic and Renal Changes in Icterus Gravis Neonatorum and in Choline Deficiency of Young Rats.

E. A. DOISY and S. A. THAYER, St. Louis University School of Medicine, St. Louis, Mo.: Vitamin K.

J. K. DONALDSON, University of Arkansas School of Medicine, Little Rock, Ark.: Intestinal Obstruction.

LOUIS I. DUBLIN, DONALD B. ARMSTRONG and (Mr.) HERBERT H. MARKS, Metropolitan Life Insurance Company, New York, N. Y., and ELLIOTT P. JOSLIN and HOWARD F. ROOT, George F. Baker Clinic, New England Deaconess Hospital, Boston, Mass.: Diabetes in the 1940's.

ANNA DEAN DULANEY, T. S. ELIOT, D. B. MORRISON, R. H. RIGDON, W. B. WENDEL and (Miss) MARY S. PASEUR, University of Tennessee College of Medicine, Memphis, Tenn.; R. I. HEWITT, Tennessee Valley Authority, Wilson Dam, Ala.; and M. H. KNISELY, University of Chicago, Chicago, Ill.: Malaria Research.

EDWIN C. ERNST, Washington University School of Medicine, St. Louis, Mo.: Military Roentgenology (1917-18-19).

PAUL F. FLETCHER, ORA J. GIBSON and S. EDWARD SULKIN (Ph.D.), Venereal Disease Control Service, St. Louis Health Department, St. Louis, Mo.: Gonorrhea in Women: Diagnosis and Treatment with Sulfathiazole.

LEE PETTIT GAY, St. Louis, Mo.: A Menu for the Management of Allergic Diseases.

R. B. H. GRADWOHL, St. Louis, Mo.: New Technics in Histopathology.

PETER HEINBECKER and H. L. WHITE, Washington University School of Medicine, St. Louis, Mo.: Pathogenesis of Cushing's Snydrome.

HEALTH DIVISION, City of St. Louis, Joseph F. Bredeck, Health Commissioner, St. Louis, Mo.: Work of the Health Division.

HOSPITAL DIVISION, City of St. Louis, F. M. Grogan, Hospital Commissioner, St. Louis, Mo.: Activities of the Hospital Division.

L. K. HUNDLEY and K. W. COSGROVE, Trachoma Division, Arkansas State Board of Health, Little Rock, Ark.: Trachoma Control in Arkansas.

HUGH J. JEWETT, James Buchanan Brady Urological Institute, Johns Hopkins Hospital, Baltimore, Md.: Uretero-Intestinal Anastomosis: A New Method.

LLOYD R. JONES (Ph.D.), and EUGENE C. ROBERTS (M.S.), St. Louis University School of Medicine, St. Louis, Mo.: Detection of Neurotropic Virus "Antibody" by Agglutination of Virus-Coated Bacterial Cells.

LOUIS H. JORSTAD and BRUCE C. MARTIN, Barnard Free Skin and Cancer Hospital, St. Louis, Mo.: Tumors of the Head and Neck: Diagnosis and Treatment.

KARL JOHN KARNAKY, Jefferson Davis Hospital, Houston Tex.: Gynecological and Obstetrical Research.

ROLAND M. KLEMME, St. Louis University School of Medicine, St. Louis, Mo.: Surgical Treatment of Neuralgias of Face.

WILLIAM B. KOUNTZ and JOHN R. SMITH, Washington University School of Medicine, St. Louis, Mo.: Heart Sounds and Cardiac Vibrations.

HUGH R. LEAVELL, Director of Health, City of Louisville, Ky.: Nutrition.

THOMAS HERBERT LIPSCOMB, Jacksonville, Fla.: X-Ray Criteria for Length and Width of Shoes.

JESSHILL LOVE, St. Joseph Infirmary, Louisville, Ky.: Direct X-Ray Therapy.

ROSS C. MacCARDLE, MARTIN F. ENGMAN, JR., and MARTIN F. ENGMAN, SR., Washington University School of Medicine and Barnard Free Skin and Cancer Hospital, St. Louis, Mo.: Mineral Changes in Neurodermatitis as Revealed by Microincineration and Stectrographic Analysis.

MISSOURI STATE BOARD OF HEALTH, James Stewart, State Health Commissioner, Jefferson City, Mo.: Maternal Care.

SHERWOOD MOORE and WENDELL G. SCOTT, Washington University School of Medicine, St. Louis, Mo.: Body Section Radiography.

JAMES L. MUDD, St. Louis University School of Medicine, St. Louis, Mo.: Ligation of a Persistent Ductus Arteriosus.

RAYMOND OLIVER MUETHER, St. Louis University School of Medicine, St. Louis, Mo.: The Use of Bovine Plasma and Serum as a Substitute for Human Blood or Plasma.

E. E. MYERS, Philippi, W. Va.: Hospital and Laboratory Apparatus.

W. AMBROSE McGEE, Richmond, Va.: Foods Which Disagree and Are Disliked During the First Year.

NUTRITION COMMITTEE FOR NATIONAL DEFENSE, St. Louis and St. Louis County, St. Louis, Mo.: A Guide to Good Eating.

NEAL OWENS and RICHARD W. VINCENT, Tulane University School of Medicine, New Orleans, La.: Plastic Surgery.

G. WILSE ROBINSON, G. WILSE ROBINSON, JR., and PRIOR SHELTON, Kansas City, Mo.: Psychoses of Old Age.

PAUL C. SCHNOEBELEN and H. R. SENTURIA, St. Louis, Mo.: Spot Radiography.

DANIEL L. SEXTON, St. Louis University School of Medicine, St. Louis, Mo.: Syndrome of Anterior Pituitary Failure.

J. S. SPEED and HAROLD B. BOYD, Memphis, Tenn.: Bone Defects with Dual Bone Grafts and Fibular Transplants.

H. I. SPECTOR, St. Louis University School of Medicine, St. Louis, Mo.: Differential Diagnosis and Treatment of Pleurisy with Effusion.

JOHN R. TOTTER, PAUL L. DAY and K. W. COSGROVE, University of Arkansas School of Medicine, Little Rock, Ark.: Cataract and Other Ocular Changes Resulting from Tryptophane Deficiency.

HENRY H. TURNER, REX BOLEND, W. FLOYD KELLER and WAYNE HULL, University of Oklahoma School of Medicine, Oklahoma City, Okla.: Clinical Use of Testosterone Propionate.

UNITED STATES PUBLIC HEALTH SERVICE, Division of Venereal Diseases, Washington, D. C., and COOPERATING CLINICS: Syphilis: Massive Dose Therapy.

UNITED STATES PUBLIC HEALTH SERVICE, Division of Mental Hygiene, Washington, D. C.: Mental Hygiene.

J. ROSS VEAL, Gallinger Municipal Hospital, Washington, D. C.: Prevention of Pulmonary Embolism in Thigh Amputations by High Ligation of Femoral Vein.

VIRGINIA STATE DEPARTMENT OF HEALTH, Richmond, Va.: Activities of the Virginia State Department of Health.

J. H. WEATHERBY (Ph.D.) and H. B. HAAG, Medical College of Virginia, Richmond, Va.: Factors Influencing Peripheral Temperature.

CURT VON WEDEL, Oklahoma City, Okla.: Plastic Surgery.

CHARLES STANLEY WHITE, J. LLOYD COLLINS and J. WEINSTEIN, George Washington University School of Medicine and Gallinger Municipal Hospital, Washington, D. C.: Preparation, Preservation and Results of Use of Plasma in Surgery.

GEORGE A. WILLIAMS, Emory University School of Medicine, Atlanta, Ga.: An Improved Vehicle for Medication of the Vagina.

MOTION PICTURES

Municipal Auditorium

There will be a special motion picture program Tuesday, Wednesday and Thursday, November 10-13, forenoons and afternoons. Here follow alphabetically the motion picture films offered at the time this program went to press. In the Official Program for use at the meeting the time the films will be run will be given. There will be a request period each day, during which any film on the program may be run upon request.

EDGAR G. BALLENGER, HAROLD P. McDONALD and R. C. COLEMAN, JR., Atlanta, Ga.: Cystoscopic Color Photography.

WOOLFOLK BARROW and FRANCIS MASSIE, Lexington, Ky.: The Use of Living Grafts in Herniorrhaphy.

ADDISON G. BRENIZER, Charlotte, N. C.: The Last Method of Ureteral Transplantation.

JAMES BARRETT BROWN and FRANK McDOWELL, Washington University School of Medicine, St. Louis, Mo.: Reconstruction of Cleft Lips.

J. A. CAMPBELL COLSTON, James Buchanan Brady Urological Institute, Johns Hopkins Hospital, Baltimore, Md.: Exstrophy of the Bladder: Surgical Removal.

RAY K. DAILY, Jefferson Davis Hospital, Houston, Tex.: Ophthalmic Operations: Surgery of Ptosis.

LOUIS I. DUBLIN, DONALD B. ARMSTRONG and (Mr.) HERBERT H. MARKS, Metropolitan Life Insurance Company, New York, N. Y., and ELLIOTT P. JOSLIN and HOWARD F. ROOT, George F. Baker Clinic, New England Deaconess Hospital, Boston, Mass.: Education of Diabetic Patients.

PAUL F. FLETCHER, St. Louis University School of Medicine, St. Louis, Mo.: Treatment of Pregnancy at Term Complicated by Curvature of the Spine and Residual Paralysis of Lower Extremities, Resulting from an Old Poliomyelitis.

HUGH A. GAMBLE, Greenville, Miss.: Plication of the Bowel for the Prevention of Intestinal Obstruction and Postoperative Adhesions.

KARL JOHN KARNAKY, Jefferson Davis Hospital, Houston, Tex.: Leukorrhea: Its Cause and Treatment.

ROLAND M. KLEMME, St. Louis University School of Medicine, St. Louis, Mo.: Trigeminal Neuralgia.

M. H. KNISELY and T. S. ELIOT, University of Tennessee College of Medicine, Memphis, Tenn.: Changes in the Circulating Blood on Malaria Infections of Rhesus Monkeys.

THOMAS HERBERT LIPSCOMB, Jacksonville, Fla.: A Roentgenologist Looks at Feet and Shoes.

JAMES L. MUDD, St. Louis University School of Medicine, St. Louis, Mo.: Ligation of a Persistent Ductus Arteriosus Complicated by a Streptococcus Endarteritis.

W. KRESS McINTYRE, St. Louis University School of Medicine, St. Louis, Mo.: Cancer of Rectum.

ROBERT BOYD McIVER, Jacksonville, Fla.: Ureterocolostomy: Report of Fifty Cases.

PHILIP H. NIPPERT, Emory University School of Medicine, Atlanta, Ga.: Treatment of Skin Cancer.

JOHN ROBERTS PHILLIPS, St. Joseph's Hospital, Houston, Tex.: Total Abdominal Hysterectomy.

J. S. SPEED and HAROLD B. BOYD, Memphis, Tenn.: Treatment of Bone Defects with Dual Bone Grafts.

UNITED STATES PUBLIC HEALTH SERVICE, Division of Venereal Diseases, Washington, D. C.: (1) Diagnosis of Early Syphilis by the General Practitioner and (2) Diagnosis of Late and Latent Syphilis.

GENERAL SESSION

PUBLIC

Jefferson Hotel, Gold Room

Monday, November 10, 8:00 p. m.

PAUL H. RINGER, Asheville, North Carolina, President, presiding after introduction by the General Chairman, NEIL S. MOORE, St. Louis.

Addresses limited to thirty minutes.

Music.

"Nutrition in War Time," JAMES S. McLESTER, Past President, American Medical Association; Chairman of Committee on Foods and Nutrition, American Medical Association; and Chairman of Subcommittee on Medical Nutrition, National Research Council, Birmingham, Ala.

"Espionage in the United States," (Mr.) EDWARD A. TAMM, Assistant Director, Federal Bureau of Investigation, U. S. Department of Justice, Washington, D. C.

"The Position of Medicine Today," FRANK H. LAHEY, President, American Medical Association, Boston, Mass.

GENERAL SESSION

PRESIDENT'S NIGHT

Jefferson Hotel, Gold Room

Tuesday, November 11, 8:00 p. m.

Music.

Call to order by the Chairman of the Committee on Arrangements, NEIL S. MOORE, St. Louis.

Invocation, REV. ALPHONSE M. SCHWITALLA, S.J., St. Louis.

Address of Welcome from the St. Louis Medical Society, JOSEPH C. PEDEN, President, St. Louis.

Address of Welcome from the Missouri State Medical Association, R. B. DENNY, President, Creve Coeur.

Response to the Addresses of Welcome from the Southern Medical Association, VINCENT W. ARCHER, University, Virginia.

Introduction of President by the General Chairman.

Introduction of Presidents.

President's Address: "Giants of Yesterday," PAUL H. RINGER, Asheville, N. C.

Installation of Incoming President, M. PINSON NEAL, Columbia, Mo.

New and Unfinished Business.

Announcements.

Adjournment for President's Reception and Ball.

Music.

GENERAL CLINICAL SESSIONS

ST. LOUIS DAY

Municipal Auditorium

MEDICINE—Section A

Presentations limited to fifteen minutes. No discussion.

Monday, November 10, 2:00 p. m.

Municipal Auditorium

William G. Becke, presiding

1. "The Comparative Role of Drugs and Sera in the Treatment of Pneumococcus Pneumonia," LAWRENCE D. THOMPSON, Assistant Professor of Clinical Medicine, and JOSEPH C. EDWARDS, Instructor in Clinical Medicine, Washington University School of Medicine, St. Louis.

2. "Current Concepts Concerning Mode of Action of the Sulfonamide Drugs," PHILIP A. SHAFFER (Ph.D.), Dean and Professor of Biological Chemistry, Washington University School of Medicine, St. Louis.

3. "Pneumonia in Children," RUSSELL J. BLATTNER, Instructor in Pediatrics, Washington University School of Medicine, St. Louis.

4. "Roentgen Findings in the Pneumonias," LEROY SANTE, Professor of Radiology and Director of the Department, St. Louis University School of Medicine, St. Louis.

5. "The Atypical Pneumonias," HENRY PINKERTON, Professor of Pathology and Director of the Department, St. Louis University School of Medicine, St. Louis.

6. "Angina Pectoris, Coronary Occlusion, Dissecting Aneurysm: A Diagnostic Triad," ARTHUR E. STRAUSS, Instructor in Clinical Medicine, Washington University School of Medicine, St. Louis.

7. "The Diagnosis of Early Degenerative Heart Disease," WILLIAM B. KOUNTZ, Assistant Professor of Clinical Medicine, Washington University School of Medicine, St. Louis, Missouri.

INTERMISSION

8. "Systemic Implications of Certain Skin Eruptions," RICHARD S. WEISS, Assistant Professor of Clinical Dermatology, Washington University School of Medicine, St. Louis.

9. "Functional Dermatoses," GAROLD V. STRYKER, Assistant Professor of Dermatology, St. Louis University School of Medicine, St. Louis.

10. "Hyperparathyroidism," AUGUST A. WERNER, Assistant Professor of Internal Medicine, St. Louis University School of Medicine, St. Louis.

11. "Use of Propadrine Hydrochloride in Weight Reduction: Preliminary Report," FRANK R. FINNEGAN, Visiting Physician, DePaul Hospital, St. Louis.

Adjournment.

GENERAL CLINICAL SESSIONS

ST. LOUIS DAY

Municipal Auditorium

MEDICINE—Section B

Presentations limited to fifteen minutes. No discussion.

Monday, November 10, 2:00 p. m.

Municipal Auditorium

Lee D. Cady, presiding

1. "Some Observations on Insulin Shock Therapy," HILLEL UNTERBERG, Associate Professor of Neurology and Psychiatry, St. Louis University School of Medicine, St. Louis.

2. "The Use of the Electroencephalogram in Neurological Conditions," HENRY G. SCHWARTZ, LOUIS TUREEN, (Mrs.) ELIZABETH ARROWSMITH, Department of Neuropsychiatry, and CARLYLE F. JACOBSEN, Professor of Medical Psychology, Washington University School of Medicine, St. Louis.

3. "The Legal Aspects of the Psychoses," JAMES F. McFADDEN, Associate Professor of Neurology and Psychiatry, St. Louis University School of Medicine, St. Louis.

4. "Recent Developments in the Use of Various Factors of the Vitamin B Complex in Diseases of the Nervous System," DAVID McK. RIOCH, Professor of Neurology and Chairman of the Department, and IRWIN LEVY, Instructor in Clinical Neurology, Washington University School of Medicine, St. Louis.

5. "Child Psychiatry," PAUL E. KUBITSCHEK, Instructor in Child Psychiatry and in Pediatrics, Washington University School of Medicine, St. Louis.

6. "The Problem of Liver Dysfunction in the Protracted Case of Icterus and Anemia of the Newborn," PETER G. DANIS, Senior Instructor in Pediatrics, St. Louis University School of Medicine, St. Louis.

INTERMISSION

7. "The Diagnosis of Enteritis in Infancy," JOHN ZAHORSKY, Professor of Pediatrics and Director of the Department, St. Louis University School of Medicine, St. Louis.

8. "The Management of Asthma in Childhood," MAURICE J. LONSWAY, Assistant in Clinical Pediatrics, and JOSEPH A. BAUER, Assistant in Clinical Pediatrics, Washington University School of Medicine, St. Louis.

9. "Some Interesting Cases of Arsenical Poisoning in Children," JULIUS A. ROSSEN, Associate Professor of Pediatrics, St. Louis University School of Medicine, St. Louis.

10. "Ocular Manifestations of Brucellosis with Case Reports," HOWARD A. RUSK, Instructor in Clinical Medicine, Washington University School of Medicine, St. Louis.

Adjournment.

GENERAL CLINICAL SESSIONS

ST. LOUIS DAY

Municipal Auditorium

MEDICINE—Section A

Presentations limited to fifteen minutes. No discussion

Tuesday, November 11, 9:00 a. m.

Municipal Auditorium

R. V. Powell, presiding

1. "Vitamin K and Other Antihemorrhagic Compounds." EDWARD A. DOISY (Ph.D.), Professor of Biochemistry and Director of the Department, and SIDNEY THAYER (Ph.D.), Professor of Biochemistry, St. Louis University School of Medicine, St. Louis.

2. "Clinical Use of Vitamin K and Related Compounds," GORONWY O. BROUN, Professor of Internal Medicine, and HENRY E. OPPENHEIMER, Instructor in Internal Medicine, St. Louis University School of Medicine, St. Louis.

3. "Coronary Artery Disease," WALTER BAUMGARTEN, Instructor in Clinical Medicine, Washington University School of Medicine, St. Louis.

4. "Factors Influencing the Mortality of Coronary Disease," O. P. J. FALK, Senior Instructor in Internal Medicine, St. Louis University School of Medicine, St. Louis.

5. "Bacterial Endocarditis," RALPH A. KINSELLA, Professor of Internal Medicine and Director of the Department, St. Louis University School of Medicine, St. Louis.

6. "Borderline Electrocardiograms: Correlation of Autopsy Findings in a Series of Over 100 Cases," JULIUS JENSEN, Assistant Professor of Clinical Medicine, Washington University School of Medicine, and RICHARD W. MAXWELL, St. Louis.

INTERMISSION

7. "Patent Ductus Arteriosus," JOHN J. HAMMOND, Senior Instructor in Internal Medicine, St. Louis University School of Medicine, St. Louis.

8. "Ligation of Persistent Ductus Arteriosus Complicated by Streptococcus Viridans with Recovery" (Motion Pictures), JAMES L. MUDD, Assistant Professor of Surgery, St. Louis University School of Medicine, St. Louis.

9. "The Use of Plasma in Medical Conditions," RAYMOND O. MUETHER, Senior Instructor in Internal Medicine, St. Louis University School of Medicine, St. Louis.

10. "Granulocytopenia Associated with Splenomegaly and Corrected by Splenectomy," CARL V. MOORE, Assistant Professor of Medicine, Washington University School of Medicine, St. Louis.

Adjournment.

GENERAL CLINICAL SESSIONS

ST. LOUIS DAY

Municipal Auditorium

MEDICINE—Section B

Presentations limited to fifteen minutes. No discussion.

Tuesday, November 11, 9:00 a. m.

Municipal Auditorium

Frank M. Gorham, presiding

1. "Recent Advances in Diabetes Mellitus," CYRIL M. MacBRYDE, Assistant Professor of Clinical Medicine, Washington University School of Medicine, St. Louis.
2. "Terminal Ileitis," CHARLES H. NEILSON, Associate Dean and Professor of Internal Medicine, St. Louis University School of Medicine, St. Louis.
3. "Pancreatitis and Cholecystitis: A Clinical Study," LESLIE D. CASSIDY, Senior Instructor in Internal Medicine, St. Louis University School of Medicine, St. Louis.
4. "Pyloric Obstructions of Ulcer," JOSEPH W. LARIMORE, Associate Professor of Clinical Medicine, Washington University School of Medicine, St. Louis.
5. "Differential Diagnosis and Treatment of Pleurisy with Effusion" (Lantern Slides), H. I. SPECTOR, Senior Instructor of Internal Medicine, St. Louis University School of Medicine, St. Louis.
6. "Spontaneous Pneumothorax and Spontaneous Mediastinal Emphysema," DANIEL W. MYERS, Instructor in Clinical Medicine, Washington University School of Medicine, St. Louis.

INTERMISSION

7. "Intrinsic Asthma," HARRY L. ALEXANDER, Professor of Medicine and Director of the Department of Internal Medicine, Washington University School of Medicine, St. Louis.
8. "Some Diagnostic Problems in Nasal Allergy," FRENCH K. HANSEL, Assistant Professor of Clinical Otolaryngology, Washington University School of Medicine, St. Louis.
9. "The Influence of Food and Allergic Vasomotor Rhinitis," CHARLES H. EYERMANN, Instructor in Clinical Medicine, Washington University School of Medicine, St. Louis.
10. "Factors Influencing Treatment of Allergic Dermatitis," C. MALONE STROUD, Instructor in Clinical Medicine, Washington University School of Medicine, St. Louis.

Adjournment.

GENERAL CLINICAL SESSIONS

ST. LOUIS DAY

Municipal Auditorium

SURGERY—Section A

Presentations limited to fifteen minutes. No discussion.

Monday, November 10, 2:00 p. m.

Municipal Auditorium

Theodore F. Brookes, presiding

1. "Treatment of Wounds," CARROLL SMITH, Professor of Surgery, St. Louis University School of Medicine, St. Louis.
2. "Osteogenic Sarcoma: Records of Two Cases," CARL F. VOHS, Senior Instructor in Orthopedic Surgery, St. Louis University School of Medicine, St. Louis.
3. "Some Common Causes of Backache," J. ARCHER O'REILLY, Professor of Orthopedic Surgery and Director of the Department, St. Louis University School of Medicine, St. Louis.
4. "The Use of the Sulfonamides in Clean Operative Wounds," JOHN ALBERT KEY, Professor of Clinical Orthopedic Surgery, Washington University School of Medicine, St. Louis.
5. "Subacromial Bursitis" (Lantern Slides), ROBERT M. O'BRIEN, Instructor in Orthopedics, St. Louis University School of Medicine, St. Louis.
6. "Treatment of Congenital Dislocation of the Hip," CLARENCE H. CREGO, JR., Assistant Professor of Clinical Orthopedic Surgery, Washington University School of Medicine, St. Louis.

INTERMISSION

7. "Diagnosis, Treatment and Prognosis of Carcinoma of Buccal Mucosa," LOUIS H. JORSTAD, Visiting Surgeon, Barnard Skin and Cancer Hospital, St. Louis.
8. "Tumors and Cysts of Dental Origin," VILRAY P. BLAIR, Professor of Clinical Surgery, Washington University School of Medicine, St. Louis.
9. "Plastic Reconstruction of the Upper Lip from the Lower Lip," CHARLES F. SHERWIN, Associate Professor of Surgery, St. Louis University School of Medicine, St. Louis.
10. "Radium Treatment of Lesions of the Face," EDGAR W. SPINZIG, Instructor in Radiology, St. Louis University School of Medicine, St. Louis.

Adjournment.

GENERAL CLINICAL SESSIONS

ST. LOUIS DAY

Municipal Auditorium

SURGERY—Section B

Presentations limited to fifteen minutes. No discussions.

Monday, November 10, 2:00 p. m.

Municipal Auditorium

Robert E. Schlueter, presiding

1. "Injuries of the Pancreas," JOHN M. McCAUGHAN, Assistant Professor of Surgery, St. Louis University School of Medicine, St. Louis.
2. "The Surgical Treatment of Carcinoma of the Head of the Pancreas," FRANKLIN E. WALTON, Assistant Dean and Instructor in Clinical Surgery, Washington University School of Medicine, St. Louis.
3. "The Acute Gallbladder," WILLIAM J. GALLAGHER, Assistant Professor of Surgery, St. Louis University School of Medicine, St. Louis.
4. "Management of the Patient with a Large Hernia," WILLARD BARTLETT, JR., Instructor in Surgery, St. Louis University School of Medicine, St. Louis.
5. "Treatment of Appendicitis in Children with Aid of Chemotherapy," PETER HEINBECKER, Associate Professor of Clinical Surgery, Washington University School of Medicine, St. Louis.

6. "Present Status of Surgical Treatment of Ulcerative Colitis," WILLIAM K. McINTYRE, Senior Instructor in Surgery, St. Louis University School of Medicine, St. Louis.

INTERMISSION

7. "Contact X-Ray Therapy," SHERWOOD MOORE, Professor of Radiology, Washington University School of Medicine, St. Louis.

8. "Treatment of Lymphoblastoma," OSCAR C. ZINK, Instructor in Clinical Radiology, Washington University School of Medicine, St. Louis.

9. "Surgical Treatment of Achalasia of the Esophagus (Cardiospasm)," NATHAN A. WOMACK, Associate Professor of Clinical Surgery, Washington University School of Medicine, St. Louis.

10. "Pulmonary Resection: Demonstration of Cases," BRIAN B. BLADES, Instructor in Clinical Surgery, Washington University School of Medicine, St. Louis.

Adjournment.

GENERAL CLINICAL SESSIONS

ST. LOUIS DAY

Municipal Auditorium

SURGERY—Section A

Presentations limited to fifteen minutes. No discussion.

Tuesday, November 11, 9:00 a. m.

Municipal Auditorium

Joseph E. Glenn, presiding

1. "The Relationship of Hormones to Benign Hypertrophy of the Prostate," ROBERT ALLEN MOORE, Edward Mallinckrodt Professor of Pathology, Washington University School of Medicine, St. Louis.

2. "Cystometry," DALTON K. ROSE, Professor of Clinical Genitourinary Surgery, Washington University School of Medicine, St. Louis.

3. "Management of Acute Infections of the Urinary Tract," HELMUTH H. KRAMOLOWSKY, Assistant Professor of Urology, St. Louis University School of Medicine, St. Louis.

4. "Kidney Damage in Urology," ROGERS DEAKIN, Assistant Professor of Clinical Genitourinary Surgery, Washington University School of Medicine, St. Louis.

5. "Some Severe Silent Lesions of the Urinary Tract," CYRUS E. BURFORD, Professor of Urology and Director of the Department, St. Louis University School of Medicine, St. Louis.

6. "Caution in Sulfathiazole Therapy," HOLLIS N. ALLEN, Pathologist, St. John's Hospital, St. Louis.

INTERMISSION

7. "Fluid and Electrolyte Balance," ALEXIS F. HARTMANN, Professor of Pediatrics and Head of the Department, Washington University School of Medicine, St. Louis.

8. "Toxic Goiter," E. VERNON MASTIN, Assistant Professor of Surgery, St. Louis University School of Medicine, St. Louis.

9. "Splenectomy for the Treatment of Splenomegaly," LOUIS RASSIEUR, Professor of Surgery, St. Louis University School of Medicine, St. Louis.

10. "Cholelithiasis and Common Duct Obstruction," ROYAL A. WEIR, Visiting Surgeon, Missouri Pacific Hospital, St. Louis.

Adjournment.

GENERAL CLINICAL SESSIONS

ST. LOUIS DAY

Municipal Auditorium

SURGERY—Section B

Presentations limited to fifteen minutes. No discussion.

Tuesday, November 11, 9:00 a. m.

Municipal Auditorium

Roland Kieffer, presiding

1. "Perforation of Gastric Carcinoma," J. WILLIAM THOMPSON, Visiting Surgeon, DePaul Hospital, St. Louis.

2. "Further Experience with the Exclusion Operation for the Treatment of Fistula of the Small Intestine," E. LAWRENCE KEYES, JR., Assistant in Clinical Surgery, Washington University School of Medicine, St. Louis.

3. "Indications of Operability in Carcinoma of Rectum," EUGENE BRICKER, Instructor in Clinical Surgery, Washington University School of Medicine, and Chief Surgeon, Ellis Fischel State Cancer Hospital, Columbia, Missouri.

4. "Interscapulo Thoracic Amputation" (Motion Pictures), WILLIAM E. LEIGHTON, Professor of Surgery, St. Louis University School of Medicine, St. Louis.

5. "Carcinoma of the Breast," GEORGE T. GAFNEY, Senior Instructor in Surgery, St. Louis University School of Medicine, St. Louis.

6. "Advisability of Radical Surgery in Brain Tumors," ERNEST SACHS, Professor of Clinical Neurological Surgery, Washington University School of Medicine, St. Louis.

INTERMISSION

7. "Intracranial Vascular Accidents, Medical or Surgical," ROLAND M. KLEMME, Associate Professor of Surgery, St. Louis University School of Medicine, St. Louis.

8. "Abscess of the Spleen: Case Report," F. J. DEAN SAUER, Instructor in Surgery, St. Louis University School of Medicine, St. Louis.

9. "Protein Depletion in Surgical Patients," ROBERT ELMAN, Associate Professor of Clinical Surgery, Washington University School of Medicine, St. Louis.

Adjournment.

GENERAL CLINICAL SESSIONS

ST. LOUIS DAY

Municipal Auditorium

OBSTETRICS AND GYNECOLOGY

Presentations limited to fifteen minutes. No discussion.

Tuesday, November 11, 9:00 a. m.

Municipal Auditorium

Richard Paddock, presiding

1. "Primary Cancer of Fallopian Tube," JOHN E. HOBBS, Assistant Professor of Clinical Obstetrics and Gynecology, Washington University School of Medicine, St. Louis.

2. "Practical Significance of the Gonadotropic Titre in Hydatiform Mole," WILLARD M. ALLEN, Professor of Obstetrics and Gynecology, Washington University School of Medicine, St. Louis.

3. "Dysmenorrhea," ROBERT J. CROSSEN, Assistant Professor of Clinical Obstetrics and Gynecology, Washington University School of Medicine, St. Louis.

4. "Leukorrhea: Etiology and Treatment," S. A. WEINTRAUB, Assistant Professor of Gynecology and Obstetrics, St. Louis University School of Medicine, St. Louis.

5. "How Shall We Treat Fibroid of the Uterus?" WILLIAM H. VOGT, SR., Professor of Gynecology and Obstetrics and Director of the Department, St. Louis University School of Medicine, St. Louis.

INTERMISSION

6. "Methods of Resuscitation of the Newborn," GREY JONES, Senior Instructor in Gynecology and Obstetrics, St. Louis University School of Medicine, St. Louis.

7. "Observations on Operative Procedures in Obstetrics," EDGAR F. SCHMITZ, Visiting Obstetrician and Gynecologist, St. Luke's Hospital, St. Louis.

8. "Diabetes in Pregnancy," CHARLES D. O'KEEFE, Assistant Professor of Clinical Obstetrics and Gynecology, Washington University School of Medicine, St. Louis.

9. "Ruptured Uterus," E. LEE DORSETT, Assistant Professor of Gynecology and Obstetrics, St. Louis University School of Medicine, St. Louis.

Adjournment.

GENERAL CLINICAL SESSIONS

ST. LOUIS DAY

Municipal Auditorium

EYE, EAR, NOSE AND THROAT

Presentations limited to fifteen minutes. No discussion.

Monday, November 10, 2:00 p. m.

Municipal Auditorium

James B. Costen, presiding

1. "Ear, Nose and Throat as Possible Sources of Focal Infection," V. VISSCHER WOOD, Assistant Professor of Otolaryngology, St. Louis University School of Medicine, St. Louis.

2. "The Displacement Method of Sinus Diagnosis and Treatment," ARTHUR W. PROETZ, Professor of Clinical Otolaryngology, Washington University School of Medicine, St. Louis.

3. "Suggestions to the General Practitioner Concerning the Recognition of Intracranial Complications of Otitic Origin," EUGENE T. SENSENEY, Professor of Otolaryngology, St. Louis University School of Medicine, St. Louis.

4. "Changes in the Symptomatology and Treatment of Ear Infections Due to Chemotherapy," HARRY W. LYMAN, Associate Professor of Clinical Otolaryngology, Washington University School of Medicine, St. Louis.

5. "The Prophylactic Treatment of Colds by Vaccine," THEODORE E. WALSH, Professor of Otolaryngology, Washington University School of Medicine, St. Louis.

6. "The Nasal Vestibule Infections and Their Management," WILLIAM E. SAUER, Professor of Otolaryngology and Director of the Department, St. Louis University School of Medicine, St. Louis.

INTERMISSION

7. "The Surgical Removal of Corneal Opacities," WILLIAM M. JAMES, Assistant Professor of Clinical Ophthalmology, Washington University School of Medicine, St. Louis.

8. "Technic for Intracapsular Extraction of Cataract" (Lantern Slides), JOHN GREEN, Professor of Ophthalmology, St. Louis University School of Medicine, St. Louis.

9. "Hyperthermia in the Treatment of Ocular Diseases," BENNETT Y. ALVIS, Assistant Professor of Clinical Ophthalmology, Washington University School of Medicine, St. Louis.

10. "Aniseikonia," LAWRENCE T. POST, Professor of Clinical Ophthalmology and Head of the Department, Washington University School of Medicine, St. Louis.

11. "Further Observations on Autofundoscopy," LESLIE C. DREWS, Senior Instructor in Ophthalmology, St. Louis University School of Medicine, St. Louis.

Adjournment.

GENERAL CLINICAL SESSION

Municipal Auditorium

Presentations limited to twenty-five minutes with a brief intermission between each presentation. No discussion.

Tuesday, November 11, 2:00 p. m.

Municipal Auditorium

PAUL H. RINGER, President, Asheville, N. C., presiding

1. "Studies on the Mechanism of Recovery in Pneumococcus Pneumonia," W. BARRY WOOD, JR., and EDWIN N. IRONS, Department of Medicine, Johns Hopkins University School of Medicine, Baltimore, Md.

2. "Certain Constitutional Manifestations of Thyrotoxicosis," HUGH J. MORGAN, Professor of Medicine, Vanderbilt University School of Medicine, Nashville, Tenn.

3. "Vaccine Therapy in Pediatrics, Past and Present," CHAS. JAMES BLOOM, New Orleans, La.

4. "Some of the Newer Developments in Surgery" (Lantern Slides), FRANK H. LAHEY, President, American Medical Association, Boston, Mass.

5. "The Problem of Venereal Disease Control," FREDERIC M. HANES, Florence McAlister Professor of Medicine, Duke University School of Medicine, Durham, N. C.

6. "The Responsibility of the General Practitioner and the Internist in Bronchiogenic Carcinoma," EVARTS A. GRAHAM, Bixby Professor of Surgery, Washington University School of Medicine, St. Louis, Mo.

Adjournment.

SECTION ON MEDICINE

Municipal Auditorium

Officers

Chairman—John W. Scott, Lexington, Ky.
Vice-Chairman—V. P. Sydenstricker, Augusta, Ga.
Secretary—Moise D. Levy, Houston, Tex.
Hosts from the St. Louis Medical Society—John J. Hammond, Augustin P. Munsch, Lawrence D. Thompson and Thomas P. Findley, Jr.

Wednesday, November 12, 9:00 a. m.

Municipal Auditorium

1. "The Management of Patients with Hypertension" (Lantern Slides), H. McGUIRE DOLES, Norfolk, Va.
   Discussion opened by Jerome E. Cook, St. Louis, Mo.

2. "Bright's Disease: Ureteral Stricture, an Etiological Factor" (Lantern Slides), GUY L. HUNNER, Baltimore, Md.
   Discussion opened by Seale Harris, Sr., Birmingham, Ala.; Lee F. Turlington, Birmingham, Ala.

3. "Sulfapyridine and Sulfathiazole Therapy in Lobar Pneumonia" (Lantern Slides), WM. H. KELLEY, Charleston, S. C.
   Discussion opened by V. P. Sydenstricker, Augusta, Ga.

4. "Hemolytic Streptococcal Infections in War Time," CHESTER S. KEEFER, Wade Professor of Medicine, Boston University School of Medicine, Boston, Mass.

5. "Bacterial Endocarditis: A Combined Bacteriologic and Clinical Problem" (Lantern Slides), EDWARD S. ORGAIN and MARY A. POSTON, Durham, N. C.

   Discussion opened by Geo. T. Harrell, Jr., Winston-Salem, North Carolina.

6. "Treatment of Paroxysmal Tachycardia of Supraventricular Origin" (Lantern Slides), EDWARD H. SCHWAB, Galveston, Tex.

   Discussion opened by Drew W. Luten, St. Louis, Mo.

Thursday, November 13, 9:00 a. m.

Municipal Auditorium

7. "The Therapy of Cerebrospinal Fever" (Lantern Slides), C. J. TRIPOLI, New Orleans, La.

   Discussion opened by Gilbert C. Anderson, New Orleans, La.

8. Chairman's Address: "Dehydration and Edema," JOHN W. SCOTT, Lexington, Ky.

9. SYMPOSIUM ON CHEMOTHERAPY, led by W. BARRY WOOD, JR., Baltimore, Md.

   (a) "Pharmacology of Sulfonamides" (Lantern Slides), SANFORD M. ROSENTHAL, Washington, D. C.

   (b) "Chemotherapy of Pneumonia" (Lantern Slides), THEODORE J. ABERNETHY, Washington, D. C.

   (c) "Chemotherapy in Surgery" (Lantern Slides), WARFIELD M. FIROR, Baltimore, Md.

   (d) "Chemotherapy of Acute Bacillary Dysentery," GEO. M. LYON, Huntington, W. Va.

   Election of Officers.

SECTION ON GASTROENTEROLOGY

Municipal Auditorium

Officers

Chairman—James L. Borland, Jacksonville, Fla.
Vice-Chairman—Donovan C. Browne, New Orleans, La.
Secretary—Julian M. Ruffin, Durham, N. C.
Hosts from the St. Louis Medical Society—Joseph W. Larimore, Frank R. Finnigan, Jerome E. Cook and John W. Henderlite.

Wednesday, November 12, 2:00 p. m.

Municipal Auditorium

1. Chairman's Address: "The Clinical Significance of Common Intestinal Protozoa Other Than *Endomoeba Histolytica*," JAMES L. BORLAND, Jacksonville, Fla.

2. "The Transmission of *Endomoeba Histolytica* and Amebic Disease," JUSTIN ANDREWS, (Sc.D.), Atlanta, Ga.

3. "Clinical Aspects of Amebic Dysentery as Seen in North Carolina" (Lantern Slides), WILLIAM SCHULZE, Durham, N. C.

   Discussion on papers of Dr. Andrews and Dr. Schulze opened by Ernest Carroll Faust, New Orleans, La.; Kenneth M. Lynch, Charleston, S. C.

4. "An Unclassified Type of Ulcerative Disease of the Colon" (Lantern Slides), PHILIP W. BROWN, Assistant Professor of Medicine, University of Minnesota Graduate School, LOUIS A. BUIE, Professor of Proctology, University of Minnesota Graduate School, and HARRY M. WEBER, Instructor in Radiology, Mayo Foundation, University of Minnesota, Rochester, Minn.

   Discussion opened by Thomas T. Mackie, New York, N. Y.; William Nicholson, Durham, N. C.

5. "Sulfaguanidine in the Treatment of Bacillary Dysentery" (Lantern Slides), LYDIA B. EDWARDS, Baltimore, Md.

   Discussion opened by George M. Lyon, Huntington, W. Va.; Richard E. Ching, Memphis, Tenn.

6. "The Gastroscopic Diagnosis of Syphilis of the Stomach" (Lantern Slides), CECIL O. PATTERSON, MILFORD O. ROUSE and JOHN S. BAGWELL, Dallas, Tex.

   Discussion opened by Donovan C. Browne, New Orleans, La.; Palmer E. Wigby, Houston, Tex.

   Election of Officers.

SECTION ON NEUROLOGY AND PSYCHIATRY

Municipal Auditorium

Officers

Chairman—David C. Wilson, Charlottesville, Va.
Vice-Chairman—Theodore A. Watters, New Orleans, La.
Secretary—Cobb Pilcher, Nashville, Tenn.
Hosts from the St. Louis Medical Society—Archie D. Carr, F. M. Grogan, Robert E. Britt and Irwin Levy.

Wednesday, November 12, 2:00 p. m.

Municipal Auditorium

1. "A Genetic Dynamic Conception of Psychopathic Personality," LAWRENCE F. WOOLLEY, Towson, Md.

   Discussion opened by Robert H. Felix, Lexington, Ky.; C. W. Mangun, Springfield, Mo.

2. "Biopsychiatry or Natural History of Psychiatry: I. Constellations of Constitutional Factors in Mental Disease" (Lantern Slides), NOLAN D. C. LEWIS, Professor of Psychiatry, Columbia University College of Physicians and Surgeons, New York, N. Y.

3. "Affectivity," WALKER THOMPSON, New Orleans, La.

   Discussion opened by William Orr, Jr., Nashville, Tenn.; Archie D. Carr, St. Louis, Mo.

4. "Glossopharyngeal Neuralgia" (Lantern Slides), R. GLEN SPURLING, Louisville, Ky.

   Discussion opened by Leonard T. Furlow, St. Louis, Mo.; Frank R. Teachenor, Kansas City, Mo.

5. "The Surgical Relief of Pain" (Lantern Slides), R. EUSTACE SEMMES, Memphis, Tenn.

   Discussion opened by Ernest Sachs, St. Louis, Mo.; M. B. Woodall, Durham, N. C.

Thursday, November 13, 2:00 p. m.

Municipal Auditorium

6. "Blood Pressure Studies in Patients Undergoing Convulsive Therapy" (Lantern Slides), HERVEY M. CLECKLEY, W. F. HAMILTON, ROBT. A. WOODBURY and P. P. VOLPITTO, Augusta, Ga.

   Discussion opened by H. D. Allen, Jr., Milledgeville, Ga.; Sydney B. Maughs, St. Louis, Mo.

7. Chairman's Address: "The Psychiatrist Looks at War," DAVID C. WILSON, Charlottesville, Va.

8. "Some Fundamentals of National Morale," HAMILTON F. FORD and TITUS H. HARRIS, Galveston, Tex.

   Discussion opened by Wm. K. Keller, Louisville, Ky.; Sidney I. Schwab, St. Louis, Mo.

9. "Brain Tumors in Children," WM. A. SMITH and EDGAR F. FINCHER, Atlanta, Ga.

   Discussion opened by Wm. de Gutierrez-Mahoney, Nashville, Tenn.; J. G. Lyerly, Jacksonville, Fla.

10. "The Present Status of Operative Treatment for Hydrocephalus" (Lantern Slides), ALBERT P. D'ERRICO, Dallas, Tex.

    Discussion opened by Harry Wilkins, Oklahoma City, Okla.; Roland M. Klemme, St. Louis, Mo.

    Election of Officers.

SECTION ON PEDIATRICS

Municipal Auditorium

Officers

Chairman—Warren W. Quillian, Coral Gables, Fla.
Vice-Chairman—Jean V. Cooke, St. Louis, Mo.
Secretary—William Weston, Jr., Columbia, S. C.
Hosts from the St. Louis Medical Society—T. Wistar White, Ellsworth Kneal, Maurice J. Lonsway and Joseph A. Bauer.

Wednesday, November 12, 2:00 p. m.

Municipal Auditorium

1. "Scarlet Fever Immunization: I. An Evaluation of Some Methods of Immunization Over a Fifteen-Year Period" (Lantern Slides), HUGH C. GRAHAM, Tulsa, Okla.
   Discussion opened by Chas. James Bloom, New Orleans, La.; Gilbert J. Levy, Memphis, Tenn.
2. Chairman's Address: "Tomorrow's Children—Our Responsibility Today," WARREN W. QUILLIAN, Coral Gables, Florida.
3. "Sinusitis in Children," JOHN J. SHEA, Memphis, Tenn.
4. "Should the Sulfonamide Drugs Be Used in Otitis Media and Mastoiditis?" J. KELLER MACK, Louisville, Ky.
   Discussion opened by Alexis F. Hartmann, St. Louis, Mo.; M. Hines Roberts, Atlanta, Ga.; J. S. Bumgardner, Louisville, Ky.
5. "Subluxation of the Head of the Radius: A Pediatric Condition" (Lantern Slides), SAMUEL A. ANDERSON, JR., Richmond, Va.
   Discussion opened by J. Warren White, Greenville, S. C.; Arthur Gardener Quinn, Memphis, Tenn.
6. "The General Practitioner and the Pediatrician: Rivals or Co-Workers," JULIAN P. PRICE, Florence, S. C.
   Discussion opened by T. Bolling Gay, Atlanta, Ga.; Borden S. Veeder, St. Louis, Mo.

Thursday, November 13, 2:00 p. m.

Municipal Auditorium

7. "Immunization with Tetanus Toxoid: A Five-Year Study," ANGUS M. McBRYDE, Durham, N. C.
   Discussion opened by Hugh L. Dwyer, Kansas City, Mo.; Robt. Parker, Montgomery, Ala.
8. "The Care of Prematures in a Small Hospital" (Lantern Slides), J. LEWIS BLANTON, Fairmont, W. Va.
   Discussion opened by Hugh Leslie Moore, Dallas, Tex.; Harvey F. Garrison, Sr., Jackson, Miss.
9. "Lung Cysts," WM. WILLIS ANDERSON, Atlanta, Ga.
   Discussion opened by W. W. Nicholson, Louisville, Ky.; Hughes Kennedy, Birmingham, Ala.
10. "Tuberculosis of Childhood" (Lantern Slides), CHESTER A. STEWART, New Orleans, La.
    Discussion opened by Horton Casparis, Nashville, Tenn.
11. "Sulfanilylguanidine in the Treatment of Enteric Infections" (Lantern Slides), J. GILBERT EBLEN, Knoxville, Tenn.
    Discussion opened by W. E. Van Order, Chattanooga, Tenn.; Clark H. Hall, Oklahoma City, Okla.

Election of Officers.

SECTION ON PATHOLOGY

Municipal Auditorium

Officers

Chairman—A. J. Miller, Louisville, Ky.
Vice-Chairman—W. R. Mathews, Shreveport, La.
Secretary—R. H. Rigdon, Memphis, Tenn.
Hosts from the St. Louis Medical Society—Hollis N. Allen, George Ives, Downey L. Harris and Omer E. Hagebusch.

Wednesday, November 12, 9:00 a. m.

Municipal Auditorium

1. Chairman's Address: "The Influence of Negative Pressure on the Function of Certain Diseased Kidneys," A. J. MILLER, Louisville, Ky.
2. "Geographic Pathology of St. Louis Encephalitis," ALBERT E. CASEY, New Orleans, La.
   Discussion opened by J. Earl Smith, St. Louis, Mo.; Margaret G. Smith, St. Louis, Mo.
3. "The Examination of Paracentetic Fluids for Malignancy" (Lantern Slides), HUGH JETER, Oklahoma City, Okla.
   Discussion opened by W. R. Mathews, Shreveport, La.; Nathan A. Womack, St. Louis, Mo.
4. "Multiple Skin Cancer: A Pathological and Statistical Study," CHARLES PHILLIPS, Temple, Tex.
   Discussion opened by Clinton W. Lane, St. Louis, Mo.; Zola Cooper, St. Louis, Mo.
5. "Liposarcoma," LAUREN V. ACKERMAN, Columbia, Mo., and PAUL A. WHEELER, St. Louis, Mo.
   Discussion opened by Elson B. Helwig, St. Louis, Mo.; Saml. H. Gray, St. Louis, Mo.
6. "Experimental Cancer of the Gastro-Intestinal Tract" (Lantern Slides), HAROLD L. STEWART, Senior Pathologist, National Cancer Institute, Bethesda, Md.
   Discussion opened by W. Cramer, St. Louis, Mo.; Robert A. Moore, St. Louis, Mo.

Thursday, November 13, 9:00 a. m.

Municipal Auditorium

7. "Biochemical Factors in Inflammation and Diabetes Mellitus" (Lantern Slides), VALY MENKIN, Department of Pathology, Harvard Medical School, Boston, Mass.

SYMPOSIUM ON SOME PATHOLOGICAL EFFECTS PRODUCED BY STAPHYLOCOCCI AND STAPHYLOCOCCUS TOXIN

8. "Staphylococcal Infections in the Human Body" (Lantern Slides), PAUL F. STOOKEY and CARL R. FERRIS, Kansas City, Mo.
   Discussion opened by R. H. Rigdon, Memphis, Tenn.
9. "A Review of the Pathological Findings in Staphylococcal Septicemia, with Special Attention to Effect of Therapy" (Lantern Slides), RUSSELL W. KERR, Kansas City, Mo.
   Discussion opened by B. C. Portuondo, St. Louis, Mo.
10. "Staphylococcal Pneumonia" (Lantern Slides), ROGER D. BAKER, Durham, N. C.
    Discussion opened by Henry Pinkerton, St. Louis, Mo.; W. A. D. Anderson, St. Louis, Mo.
11. "Staphylococcal Food Poisoning," GLENN G. SLOCUM, Food and Drug Administration, Federal Security Agency, Washington, D. C.
    Discussion opened by J. J. Bronfenbrenner, St. Louis, Mo.; G. Foard McGinnes, Nashville, Tenn.

Election of Officers.

SECTION ON RADIOLOGY

Municipal Auditorium

Officers

Chairman—Edwin C. Ernst, St. Louis, Mo.
Vice-Chairman—J. Cash King, Memphis, Tenn.
Secretary—W. R. Brooksher, Fort Smith, Ark.
Hosts from the St. Louis Medical Society—Oscar C. Zink, Edgar W. Spinzig, W. K. Mueller and A. N. Arneson.

Wednesday, November 12, 9:00 a. m.

Municipal Auditorium

1. "Madelung's Deformity: Case Report" (Lantern Slides), J. MARSH FRERE, Chattanooga, Tenn.
   Discussion opened by James J. Clark, Atlanta, Ga.; Franklin B. Bogart, Chattanooga, Tenn.

2. Chairman's Address: "The Roentgen Management of Uterine Fibroids" (Lantern Slides), EDWIN C. ERNST, St, Louis, Missouri.

3. "Carcinoma of the Uterus: Pre-Biopsy Irradiation, Diagnosis and Treatment" (Lantern Slides), WRIGHT CLARKSON, Petersburg, Va.

Discussion opened by J. Shelton Horsley, Richmond, Va.; Randolph H. Hoge, Richmond, Va.

4. PANEL DISCUSSION, "Diagnosis of Gastro-Intestinal Diseases," led by VINCENT W. ARCHER, University, Va.

(a) Radiology—EDWARD L. JENKINSON, Associate Professor of Radiology, Northwestern University Medical School, Chicago, Ill.

(b) Gastro-Enterology—JULIAN M. RUFFIN, Durham, North Carolina.

(c) Surgery—EDWIN P. LEHMAN, University, Va.

Questions invited from the audience.

Thursday, November 13, 9:00 a. m.

Municipal Auditorium

5. "Direct X-Irradiation of Deep-Seated Tumors" (Lantern Slides), JESSHILL LOVE, Louisville, Ky.

Discussion opened by Sherwood Moore, St. Louis, Mo.; J. Duffy Hancock, Louisville, Ky.

6. "Roentgen Rays in the Diagnosis of Early Pulmonary Tuberculosis" (Lantern Slides), ROY G. GILES, San Antonio, Texas.

Discussion opened by Ralph E. Myers, Oklahoma City, Okla.; Robert J. Reeves, Durham, N. C.

7. "The Normal Chest" (Lantern Slides), IRA H. LOCKWOOD, Kansas City, Mo.

Discussion opened by Paul F. Titterington, St. Louis, Mo.; Paul C. Schnoebelen, St. Louis, Mo.

8. "Roentgen Therapy to the Pituitary Gland in Functional Disturbances of and Associated with Menstruation: Second Report," J. CASH KING, Memphis, Tenn.

Discussion opened by Conley H. Sanford, Memphis, Tenn.; Roy G. Giles, San Antonio, Tex.

9. "Pulmonary Atelectasis" (Lantern Slides), JOSEPH C. BELL, Louisville, Ky.

Discussion opened by LeRoy Sante, St. Louis, Mo.; Maurice G. Buckles, Louisville, Ky.

Election of Officers.

SECTION ON DERMATOLOGY AND SYPHILOLOGY

Municipal Auditorium

Officers

Chairman—Howard King, Nashville, Tenn.
Vice-Chairman—A. H. Conrad, St. Louis, Mo.
Secretary—Alan Brown, Jacksonville, Fla.
Hosts from the St. Louis Medical Society—Martin F. Engman, Jr., James W. Bagby, Joseph B. Grindon, Jr., and Arthur W. Neilson.

Tuesday, November 11

Clinic and Luncheon by the St. Louis Dermatological Society. 10:00 a. m.—Demonstration of Dermatological Cases, Firmin Desloge Hospital of the St. Louis University School of Medicine Group Hospitals, Grand Avenue and Caroline Street. 12:00 noon—Luncheon at St. Louis University School of Medicine, Grand Avenue and Caroline Street. 1:00 p. m.—"The Cutaneous Lesions of Bartonellosis (Verruga Peruana as an Allergic Reaction," HENRY PINKERTON, Professor of Pathology, St. Louis University School of Medicine, St. Louis. 2:00 p. m.—Discussion of Cases.

Tuesday, November 11

Dinner of Section, Jefferson Hotel, 8:00 p. m.

Wednesday, November 12, 2:00 p. m.

Municipal Auditorium

1. "The Treatment of Granuloma Inguinale" (Lantern Slides), HARRY M. ROBINSON and HARRY M. ROBINSON, JR., Baltimore, Md.

Discussion opened by M. F. Engman, Jr., St. Louis, Mo.

2. "Tuberculosis, Tuberculids and Related Diseases as They Occur in the South" (Lantern Slides), CHAS. BARRETT KENNEDY, JAMES K. HOWLES and V. MEDD HENINGTON, New Orleans, La.

Discussion opened by Winston U. Rutledge, Louisville, Ky.

3. "Pustular Bacterids and Allied Conditions," GEORGE CLINTON ANDREWS, Associate Clinical Professor of Dermatology, Columbia University College of Physicians and Surgeons, New York, N. Y., and MAURICE C. BARNES, Waco, Tex.

4. "Sulfathiazole in the Treatment of Fungus Conditions" (Lantern Slides), CHARLES C. DENNIE and DAVID B. MORGAN, Kansas City, Mo.

Discussion opened by Everett R. Seale, Houston, Tex.

5. "Contact X-Ray Therapy" (Lantern Slides), WM. L. KIRBY, Winston-Salem, N. C.

Discussion opened by Garold V. Stryker, St. Louis, Mo.

6. "The Varicelliform Eruption of Kaposi" (Lantern Slides), ALLEN W. PEPPLE and THOMAS W. MURRELL, Richmond, Va.

Discussion opened by Clinton W. Lane, St. Louis, Mo.

Thursday, November 13, 2:00 p. m.

Municipal Auditorium

7. Chairman's Address: "Boric Acid," HOWARD KING, Nashville, Tenn.

8. ROUND TABLE DISCUSSION: "Therapeutics." Papers limited to eight minutes, discussion to two minutes.

(a) "The Treatment of Corneal Ulcer and Other Eye Diseases with X-Ray," HERBERT S. ALDEN and JACK W. JONES, Atlanta, Ga.

(b) "Vitamin Therapy in Dermatology," J. RICHARD ALLISON, Columbia, S. C.

(c) "The Management of Bromide Eruption by the Use of Cortical Hormone and Chloride," C. P. BONDURANT, Oklahoma City, Okla.

(d) "X-Ray Therapy in Acute Superficial Infections," CHAS. M. HAMILTON, Nashville, Tenn.

(e) "Treatment of Onychomycosis" (Lantern Slides), HOWARD HAILEY, Atlanta, Ga.

(f) "The Treatment of Vincent's Infection with Fuadin" (Lantern Slides), DUDLEY C. SMITH, University, Va.

(g) "The Treatment of Lichen Planus," A. H. CONRAD, St. Louis, Mo.

(h) "The Management of Dermatitis Herpetiformis," J. LAMAR CALLAWAY, Durham, N. C.

(i) "Pityriasis Rosea: Treatment with Baths in Bichloride of Mercury Solution," RICHARD L. SUTTON, JR., Kansas City, Mo.

Election of Officers.

SECTION ON ALLERGY

Municipal Auditorium

Officers

Chairman—Marion T. Davidson, Birmingham, Ala.
Vice-Chairman—C. Malone Stroud, St. Louis, Mo.
Secretary—Clarence K. Weil, Montgomery, Ala.
Hosts from the St. Louis Medical Society—Charles H. Eyermann, C. Malone Stroud, Stanley F. Hampton and Lee Pettit Gay.

Tuesday, November 11, 2:00 p. m.

Municipal Auditorium

1. "Occupational and Seasonal Hay Fever and Asthma Due to Narcissus Bulbs," VINCENT J. DERBES, New Orleans, Louisiana.
   Discussion opened by Warren T. Vaughan, Richmond, Va.; Ralph Bowen, Houston, Tex.
2. "Studies on Human Hypersensitivity to Poison Ivy of Practical Interest" (Motion Pictures), EDMUND L. KEENEY, Baltimore, Md.
   Discussion opened by Leslie N. Gay, Baltimore, Md.; L. O. Dutton, El Paso, Tex.
3. "The Nature and Cause of Edema," MARTIN H. FISCHER, Jos. Eichberg Professor of Physiology, University of Cincinnati College of Medicine, Cincinnati, O.
4. "The Problem of the Allergic Individual in the Army," J. W. H. ROUSE, Major, Medical Corps, U. S. Army, San Antonio, Tex.
   Discussion opened by I. S. Kahn, San Antonio, Tex.; Alan Cazort, Little Rock, Ark.
5. "The Differentiation of Bronchial Asthma from Sighing Dyspnea and Cardiac Asthma," WM. H. BROWNING, Shreveport, La.
   Discussion opened by Homer E. Prince, Houston, Tex.; Hal M. Davison, Atlanta, Ga.
6. "Diabetes as a Factor in Intractable Asthma" (Lantern Slides), ALFRED M. GOLTMAN, Memphis, Tenn.
   Discussion opened by J. Harvey Black, Dallas, Tex.; E. Rankin Denny, Tulsa, Okla.

Wednesday, November 12, 12:30 noon

Round Table Luncheon Meeting, Jefferson Hotel

7. Chairman's Address: "Milk, a Human Poison," MARION T. DAVIDSON, Birmingham, Ala.
8. "Egg Sensitization," WARREN T. VAUGHAN, Richmond, Virginia.
9. "Wheat Sensitivity," EDNA S. PENNINGTON, Nashville, Tennessee.
10. "Cottonseed Sensitivity," OSCAR SWINEFORD, JR., Charlottesville, Va.
11. "Fruit Sensitivity," I. S. KAHN, San Antonio, Tex.
12. "Treatment of Food Allergy," J. HARVEY BLACK, Dallas, Texas.

Election of Officers.

SECTION ON SURGERY

Municipal Auditorium

Officers

Chairman—Claude J. Hunt, Kansas City, Mo.
Vice-Chairman—J. Duffy Hancock, Louisville, Ky.
Secretary—J. A. Crisler, Jr., Memphis, Tenn.
Hosts from the St. Louis Medical Society—Duff S. Allen, Brian B. Blades, Theodore H. Hanser and Thomas M. Martin.

Wednesday, November 12, 2:00 p. m.

Municipal Auditorium

1. "Convulsions of Anesthesia" (Motion Pictures and Lantern Slides), JAMES P. TYE, Albany, Ga.
   Discussion opened by William A. Smith, Atlanta, Ga.; Roy R. Kracke, Emory University, Ga.
2. "Human Bites: An Analysis of Ninety Cases, Chiefly Delayed and Late, from Charity Hospital of Louisiana" (Lantern Slides), FREDERICK F. BOYCE, New Orleans, La.
   Discussion opened by James Barrett Brown, St. Louis, Mo.; Nathan A. Womack, St. Louis, Mo.
3. "Appendicitis in Kentucky" (Lantern Slides), J. B. LUKINS, Louisville, Ky.
   Discussion opened by Jere L. Crook, Jackson, Tenn.; Malcom D. Thompson, Louisville, Ky.
4. "Subdiaphragmatic Sympathectomy for Essential Hypertension" (Lantern Slides), JAMES W. HENDRICK, Amarillo, Texas.
   Discussion opened by R. Glen Spurling, Louisville, Ky.; Willard Bartlett, Jr., St. Louis, Mo.
5. "Adrenal Tumors" (Motion Pictures), WALTMAN WALTERS, Professor of Surgery, University of Minnesota Graduate School of Medicine, and Surgeon, Mayo Clinic, Rochester, Minn.
6. "Acute Cholecystitis: The Optimum Time for Surgery" (Lantern Slides), WOOLFOLK BARROW and FRANCIS M. MASSIE, Lexington, Ky.
   Discussion opened by Evarts A. Graham, St. Louis, Mo.; Willard H. Parsons, Virksburg, Miss.; Alton Ochsner, New Orleans, La.

Thursday, November 13, 2:00 p. m.

Municipal Auditorium

7. Chairman's Address: "Some Problems Associated with the Surgical Management of Thyroid Disease" (Lantern Slides), CLAUDE J. HUNT, Kansas City, Mo.
8. "Carcinoma of the Colon: Factors Influencing Prognosis" (Lantern Slides), G. V. BRINDLEY, Temple, Tex.
   Discussion opened by Fred W. Rankin, Lexington, Ky.; E. Vernon Mastin, St. Louis, Mo.

SYMPOSIUM ON SURGERY OF THE STOMACH

9. "Pyloroplasty," J. M. T. FINNEY, SR., Baltimore, Md.
10. "Billroth I Type of Partial Gastrectomy," J. SHELTON HORSLEY, Richmond, Va.
11. "An Evaluation of the Methods of Partial Gastrectomy" (Lantern Slides), R. L. SANDERS, Memphis, Tenn.
    Discussion on Symposium opened by Barney Brooks, Nashville, Tenn.; Fred W. Bailey, St. Louis, Mo.; Earle Drennen, Birmingham, Ala.; Wm. M. Scruggs, Charlotte, North Carolina.

Election of Officers.

SECTION ON BONE AND JOINT SURGERY

Municipal Auditorium

Officers

Chairman—F. Walter Carruthers, Little Rock, Ark.
Vice-Chairman—Guy W. Leadbetter, Washington, D. C.
Secretary—Winthrop M. Phelps, Baltimore, Md.
Hosts from the St. Louis Medical Society—Clarence H. Crego, Jr., Stanley M. Leydig, Maurice B. Roche and John Patrick Murphy, Jr.

Wednesday, November 12, 9:00 a. m.

Municipal Auditorium

1. "A Reconstructive Operation for the Shoulder Joint, Following Fracture or Injuries about the Head of the Humerus," LAURENCE JONES, Kansas City, Mo.
   Discussion opened by Jacob Kulowski, St. Joseph, Mo.; Winthrop M. Phelps, Baltimore, Md.

2. "Scalenus Anticus Syndrome or Cervical Foraminal Compression?" (Lantern Slides), I. WILLIAM NACHLAS, Baltimore, Md.

   Discussion opened by Guy A. Caldwell, New Orleans, La.; James R. Bost, Houston, Tex.

3. Chairman's Address: "Historical Review of Metals Used in Bone and Joint Surgery," F. WALTER CARRUTHERS, Little Rock, Ark.

4. "The Nicola Operation for Recurrent Dislocation of the Shoulder: Review of Cases," R. BEVERLY RANEY, Durham, N. C., and OSCAR L. MILLER, Charlotte, N. C.

   Discussion opened by James Archer O'Reilly, St. Louis, Mo.; W. B. Carrell, Dallas, Tex.

5. "Transplants to the Thumb to Restore Function of Opposition: End Results" (Lantern Slides and Motion Pictures), CHAS. E. IRWIN, Warm Springs, Ga.

   Discussion opened by Paul C. Colonna, Oklahoma City, Okla.

6. "Experimental Observations on the Use of Sulfanilamide and Zinc Peroxide in the Treatment and Prevention of Gas Gangrene" (Lantern Slides), GUY A. CALDWELL and FRANK J. COX, New Orleans, La.

   Discussion opened by J. Albert Key, St. Louis, Mo.; Frank D. Dickson, Kansas City, Mo.

Thursday, November 13, 9:00 a. m.

7. "Total Excision of the Patella: Indications, Technic and End Results," FRANK L. FORT and PAUL H. MARTIN, Jacksonville, Fla.

   Discussion opened by John D. Sherrill, Birmingham, Ala.; Robert C. Robertson, Chattanooga, Tenn.

8. "The Treatment of Slipped Epiphyses of the Hip" (Lantern Slides), W. K. WEST, Oklahoma City, Okla.

   Discussion opened by Wm. R. Bohne, St. Louis, Mo.; Walter G. Stuck, San Antonio, Tex.

9. "Cysts of the Semilunar Cartilages of the Knee: A Study of 40 Cases" (Lantern Slides), LEWIS CLARK WAGNER, New York, N. Y.

10. "The Palliative Treatment of Irreducible Congenital Dislocation of the Hip," CHARLES J. FRANKEL, University, Virginia.

    Discussion opened by C. H. Crego, St. Louis, Mo.; W. Barnett Owen, Louisville, Ky.

11. "Congenital Coxa Vara Treated by the Haas Procedure" (Lantern Slides), WM. M. ROBERTS, Gastonia, N. C.

    Discussion opened by R. Beverly Raney, Durham, N. C.; J. Warren White, Greenville, S. C.

12. "Fractures of the Astragalus" (Lantern Slides), HAROLD B. BOYD and ROBERT A. KNIGHT, Memphis, Tenn.

    Discussion opened by Frederick A. Jostes, St. Louis, Mo.; Rex L. Diveley, Kansas City, Mo.

Election of Officers.

SECTION ON GYNECOLOGY

Municipal Auditorium

Officers

Chairman—E. C. Hamblen, Durham, N. C.
Vice-Chairman—W. O. Johnson, Louisville, Ky.
Secretary—John T. Sanders, New Orleans, La.

Hosts from the St. Louis Medical Society—Robert J. Crossen, Frank P. McNalley, William H. Vogt, Jr., and Leo J. Hartnett.

Tuesday, November 11, 2:00 p. m.

Municipal Auditorium

1. Chairman's Address: "The Sterile Couple: Analysis of Some Diagnostic and Therapeutic Data," E. C. HAMBLEN, Durham, N. C.

2. "Histological Entities of Various Types of Menorrhagia," JOHN L. McKELVEY, Professor of Obstetrics and Gynecology, University of Minnesota Medical School, Minneapolis, Minn.

3. "A General Concept of the Disorders of Menstruation," JOHN C. BURCH and DORIS PHELPS, Nashville, Tenn.

   Discussion opened by Lucien A. LeDoux, New Orleans, La. Fredk. K. Taussig, St. Louis, Mo.

4. "Endometriosis: A Problem of Treatment," PETER GRAFFAGNINO and RICHARD T. STEPHENSON, New Orleans, La.

   Discussion opened by Otto S. Krebs, St. Louis, Mo.; Lee F. Turlington, Birmingham, Ala.

5. "The Development of the Radical Operation for Breast Cancer" (Lantern Slides), M. Y. DABNEY, Birmingham, Ala.

   Discussion opened by J. M. T. Finney, Sr., Baltimore, Md.; Wendell Long, Oklahoma City, Okla.

6. "Carcinoma of the Cervix" (Lantern Slides), JOSEPH W. KELSO, Oklahoma City, Okla.

   Discussion opened by P. C. Schreier, Memphis, Tenn.; E. Lee Dorsett, St. Louis, Mo.

Election of Officers.

Thursday, November 13, 9:00 a. m.

Municipal Auditorium

Joint Session with Section on Obstetrics

7. "Etiological Factors in Prolapse of the Uterus," JOHN W. TURNER, Atlanta, Ga.

   Discussion opened by Wm. H. Vogt, St. Louis, Mo.; John F. Lucas, Greenwood, Miss.

8. "The Use of Stilbestrol for the Treatment of Threatened Abortion: Preliminary Report," KARL JOHN KARNAKY, Houston, Tex.

   Discussion opened by Willard M. Allen, St. Louis, Mo.; Frederick V. Emmert, St. Louis, Mo.

9. "Chemotherapy in Obstetrics and Gynecology," JOHN L. McKELVEY, Professor of Obstetrics and Gynecology, University of Minnesota Medical School, Minneapolis, Minn., and RALPH A. REIS, Assistant Professor of Obstetrics and Gynecology, Northwestern University Medical School, Chicago, Ill.

SECTION ON OBSTETRICS

Municipal Auditorium

Officers

Chairman—Joseph W. Reddoch, New Orleans, La.
Vice-Chairman—Robert E. Seibels, Columbia, S. C.
Secretary—R. A. White, Asheville, N. C.

Hosts from the St. Louis Medical Society—Franz Arzt, Otto S. Krebs, J. Grey Jones and Henry J. Ringo.

Wednesday, November 12, 9:00 a. m.

Municipal Audiorium

1. Chairman's Address: "Podalic Version and Breech Extraction, with Comments from a Recent Five-Year Study," JOSEPH W. REDDOCH, New Orleans, La.

2. "Why Not Cesarean Section?" RALPH A. REIS, Assistant Professor of Obstetrics and Gynecology, Northwestern University Medical School, Chicago, Ill.

3. "The Interdependence of Scientific Research and Obstetrical Practice," GEORGE R. OSBORN, Tulsa, Okla.

   Discussion opened by W. T. Pride, Memphis, Tenn.; Richard Paddock, St. Louis, Mo.

4. "Rural Obstetrics: A Report of the Work of the Frontier Nursing Service," JOHN H. KOOSER, Hyden, Ky.

   Discussion opened by Robert E. Seibels, Columbia, S. C.; Wm. T. McConnell, Louisville, Ky.

5. "Autopsies in Eclampsia," F. BAYARD CARTER, Durham, North Carolina.

   Discussion opened by Carl R. Wegner, St. Louis, Mo.; William W. Coppedge, East Point, Ga.

6. "Prophylactic Use of Vitamin K in Obstetrics" (Lantern Slides), LOUIS M. HELLMAN, Baltimore, Md.

   Discussion opened by Robert A. Johnston, Houston, Tex.; James R. Reinberger, Memphis, Tenn.

Election of Officers.

Thursday, November 13, 9:00 a. m.

Municipal Auditorium

Joint Session with Section on Gynecology

7. "Etiological Factors in Prolapse of the Uterus," JOHN W. TURNER, Atlanta, Ga.

   Discussion opened by Wm. H. Vogt, St. Louis, Mo.; John F. Lucas, Greenwood, Miss.

8. "The Use of Stilbestrol for the Treatment of Threatened Abortion: Preliminary Report," KARL JOHN KARNAKY, Houston, Tex.

   Discussion opened by Willard M. Allen, St. Louis, Mo.; Frederick V. Emmert, St. Louis, Mo.

9. "Chemotherapy in Obstetrics and Gynecology," JOHN L. McKELVEY, Professor of Obstetrics and Gynecology, University of Minnesota Medical School, Minneapolis, Minn., and RALPH A. REIS, Assistant Professor of Obstetrics and Gynecology, Northwestern University Medical School, Chicago, Ill.

SECTION ON UROLOGY

Municipal Auditorium

Officers

Chairman—Grayson Carroll, St. Louis, Mo.
Vice-Chairman—Edward H. Ray, Lexington, Ky.
Secretary—Austin I. Dodson, Richmond, Va.
Hosts from the St. Louis Medical Society—John Franklin Patton, James M. Macnish, Alvin E. Vitt and George H. Koenig.

Wednesday, November 12, 9:00 a. m.

Municipal Auditorium

1. "Renal Cortical Necrosis: Case Reports" (Lantern Slides), FRED K. GARVEY, Winston-Salem, N. C.

   Discussion opened by Linwood D. Keyser, Roanoke, Va.; Jefferson C. Pennington, Nashville, Tenn.

2. "The Technique of Pyelography" (Lantern Slides and Motion Pictures), H. McCLURE YOUNG, Columbia, Mo.

   Discussion opened by J. Ullman Reaves, Mobile, Ala.; H. King Wade, Hot Springs, Ark.

3. SYMPOSIUM ON CONSERVATIVE RENAL SURGERY

   (a) "Plastic Procedures for the Correction of Defective Renal Drainage" (Motion Pictures), ROBERT B. McIVER, Jacksonville, Fla.

   (b) "Renal Counterbalance in Relation to Conservative Renal Surgery," LOUIS M. ORR, JR., and PALMER R. KUNDERT, Orlando, Fla.

   (c) "Late Results of Plastic Surgery in Hydronephrosis" (Lantern Slides), THOMAS D. MOORE, Memphis, Tennessee.

   Discussion on Symposium opened by Cyrus E. Burford, St. Louis, Mo.; Nelse F. Ockerblad, Kansas City, Mo.; R. E. Van Duzen, Dallas, Tex.

4. "Uretero-Intestinal Implantation: Experimental and Clinical Results with a New Method" (Motion Pictures), HUGH J. JEWETT, Baltimore, Md.

   Discussion opened by Harold A. O'Brien, Dallas, Tex.

5. "Free for All Hour,"* conducted by T. LEON HOWARD, Denver, Col., and LOUIS M. ORR, JR., Orlando, Fla.

Thursday, November 13, 9:00 a. m.

Municipal Auditorium

6. "Sulfathiazole Therapy in Venerology," ALBERT A. CREECY and H. L. SWITKES, Newport News, Va.

7. "Preoperative Use of Sulfathiazole for the Prevention of Postoperative Complications: A Clinical Study" (Lantern Slides), J. A. C. COLSTON and R. W. SATTERTHWAITE, Baltimore, Md.

   Discussion on papers of Dr. Creecy and Drs. Colston and Satterthwaite opened by Edgar G. Ballenger, Atlanta, Ga.; H. W. E. Walther, New Orleans, La.; Owsley Grant, Louisville, Ky.; E. Halsell Fite, Muskogee, Okla.

8. "Plastic Operations in Urology" (Lantern Slides and Motion Pictures), OSWALD SWINNEY LOWSLEY, President, American Urological Association, New York, N. Y.

9. Chairman's Address: "Urological Investigational Work in the South," GRAYSON CARROLL, St. Louis, Mo.

10. "Renal Injury" (Lantern Slides), JARRATT P. ROBERTSON, Birmingham, Ala.

11. "Diagnosis and Treatment of Traumatic Rupture of the Posterior Urethra" (Lantern Slides), C. J. REYNOLDS, Bluefield, W. Va.

12. "Torsion of the Testical and Its Appendages," HUBERT K. TURLEY, Memphis, Tenn.

    Discussion on papers of Dr. Robertson, Dr. Reynolds and Dr. Turley opened by Wm. M. Coppridge, Durham, N. C.; Edgar Burns, New Orleans, La.

13. "A Resume of the End Results of One Thousand Consecutive Cases Following Surgery for the Relief of Bladder Neck Obstruction" (Lantern Slides), WM. C. D. McCUSKEY, Wheeling, W. Va.

    Discussion opened by John F. Patton, St. Louis, Mo.; B. Weems Turner, Houston, Tex.; Howard L. Tolson, Cumberland, Md.

Election of Officers.

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*Send brief abstracts of unusual or problem cases for discussion to T. Leon Howard, 1612 Tremont Place, Denver, Col., or to Louis M. Orr, Jr., 307 South Orange Avenue, Orlando, Florida.

SECTION ON PROCTOLOGY

Municipal Auditorium

Officers

Chairman—Frederick B. Campbell, Kansas City, Mo.
Vice-Chairman—Maurice Lescale, New Orleans, La.
Secretary—W. K. McIntyre, St. Louis, Mo.
Hosts from the St. Louis Medical Society—Samuel E. Newman, Leslie D. Cassidy and Samuel J. Freund.

Wednesday, November 12, 7:00 p. m.

Annual Section Dinner, Jefferson Hotel

Thursday, November 13, 2:00 p. m.

Municipal Auditorium

1. "The Management of Colonic Malignancy" (Lantern Slides), CURTICE ROSSER, Dallas, Tex.

   Discussion opened by Walter A. Fansler, Minneapolis, Minn.; Wm. H. Daniel, Los Angeles, Calif.; W. K. McIntyre, St. Louis, Mo.

2. "Some Pitfalls in Proctologic Diagnosis" (Lantern Slides), LOUIS J. HIRSCHMAN, Professor of Proctology, Wayne University College of Medicine, Detroit, Mich.

   Discussion opened by Herbert T. Hayes, Houston, Tex.; Geo. F. Eubanks, Atlanta, Ga.; Emmett H. Terrell, Richmond, Va.

3. Chairman's Address: "The Indications for Rectal Surgery" (Lantern Slides), FREDERICK B. CAMPBELL, Kansas City, Mo.

4. "The Indications and Evaluations of the Sulfonamides in Proctology," MARION C. PRUITT, Atlanta, Ga.

   Discussion opened by Raymond L. Murdoch, Oklahoma City, Okla.; Hugh Beaton, Fort Worth, Tex.; J. H. Dodson, Mobile, Ala.

5. "The Relationship of Mineral Oil Laxatives and Saline Cathartics to Anorectal Infections and Their Treatment" (Lantern Slides), GEO. H. THIELE, Kansas City, Mo.

   Discussion opened by Vernon G. Jeurink, Denver, Col.; Walter G. Hook, Kansas City, Mo.; Hoyt R. Allen, Little Rock, Ark.

Election of Officers.

SECTION ON RAILWAY SURGERY

Municipal Auditorium

Officers

Chairman—J. J. Brandabur, Huntington, W. Va.
Vice-Chairman—Duncan Eve, Nashville, Tenn.
Hosts from the St. Louis Medical Society—M. J. Pulliam, Oliver B. Zeinert, Ross A. Woolsey, Victor B. Kieffer and Earl R. Rice.

Tuesday, November 11, 2:00 p. m.

Municipal Auditorium

1. Chairman's Address: "Practical Aspects of a Physical Examination Program," J. J. BRANDABUR, Huntington, West Virginia.

   Discussion opened by Oliver B. Zeinert, St. Louis, Mo.

2. "Minor Injuries," LLOYD J. NETTO, West Palm Beach, Fla.

   Discussion opened by Ross A. Woolsey, St. Louis, Mo.

3. "Treatment of Burns" (Lantern Slides), JOHN D. MARTIN, JR., Atlanta, Ga.

   Discussion opened by Neal Owens, New Orleans, La.

4. "Hypertension in Train and Engine Service," GEO. P. MYERS, Medical Director, New York Central System, Detroit, Mich.

   Discussion opened by John W. Scott, Lexington, Ky.; Walter E. Vest, Huntington, W. Va.

5. "The Local Use of Sulfonamide Drugs in the Treatment of Compound Fractures" (Motion Pictures), FRANK D. DICKSON, Kansas City, Mo.

   Discussion opened by J. Albert Key, St. Louis, Mo.

Election of Officers.

SECTION ON OPHTHALMOLOGY AND OTOLARYNGOLOGY

Municipal Auditorium

Officers

Chairman—W. Likely Simpson, Memphis, Tenn.
Chairman-Elect—L. Chester McHenry, Oklahoma City, Okla.
Vice-Chairman—Kate Savage Zerfoss, Nashville, Tenn.
Secretary—J. W. Jervey, Jr., Greenville, S. C.
Hosts from the St. Louis Medical Society—Louis J. Birsner, L. E. Freimuth, George E. Hourn, Albert C. Stutsman, Edmund B. Alvis, Philip S. Luedde, Charles J. Gissy and Wm. M. James.

Tuesday, November 11, 2:00 p. m.

Municipal Auditorium

1. "Pits or Crater-Like Holes in the Optic Disk" (Lantern Slides), JAMES N. GREEAR, JR., Washington, D. C.

   Discussion opened by Bennett Y. Alvis, St. Louis, Mo.; Kate Savage Zerfoss, Nashville, Tenn.

2. "An Evaluation of the Audiometer in Testing Hearing," C. C. SWANN, Asheville, N. C.

   Discussion opened by Edwin J. Chapman, Asheville, N. C.; Millen A. Nickle, Clearwater, Fla.

3. Chairman's Address: "Osteomyelitis of the Skull Resulting from Infection in the Sinuses," W. LIKELY SIMPSON, Memphis, Tenn.

4. "The Nasal Entrance" (Lantern Slides), W. RAYMOND McKENZIE, Baltimore, Md.

   Discussion opened by Arthur M. Alden, St. Louis, Mo.; John G. McLaurin, Dallas, Tex.; M. F. Arbuckle, Fort Leonard Wood, Mo.

5. "Cochliomyia Americana Infestation in Man," H. MARSHALL TAYLOR, Jacksonville, Fla.

   Discussion opened by John H. Foster, Houston, Tex.; Burbank P. Woodson, Temple, Tex.

6. "Congenital Choanal Occlusion with Report of Two Cases" (Lantern Slides), WM. L. BONHAM, Oklahoma City, Oklahoma.

   Discussion opened by L. Chester McHenry, Oklahoma City, Okla.; Philip J. Bayon, New Orleans, La.

7. "Surgical Treatment of Glaucoma" (Lantern Slides), M. ELLIOTT RANDOLPH and GAYNELLE ROBERTSON, Baltimore, Md.

   Discussion opened by Wm. M. James, St. Louis, Mo.; John H. Burleson, San Antonio, Tex.; Tullos Coston, Oklahoma City, Okla.; W. P. McGuire, Winchester, Va.

Wednesday, November 12, 9:00 a. m.

Municipal Auditorium

8. "Clinical Observations Using Certain Factors of the Vitamin B Complex as a Therapeutic Agent in Ophthalmology" (Lantern Slides), WM. B. CLARK, New Orleans, La.

   Discussion opened by Grady E. Clay, Atlanta, Ga.; Ruskin G. Anderson, Spartanburg, S. C.

9. "The Use of Heparin in the Treatment of Thrombosis of the Central Vein of the Retina," RALPH O. RYCHENER, Memphis, Tenn.

   Discussion opened by Albert N. B. Lemoine, Kansas City, Mo., Alvin H. Benz, Chattanooga, Tenn.

10. "Various Phases of Otitic Sepsis" (Lantern Slides), ERNEST M. SEYDELL, Wichita, Kan.

11. "Subacute Catarrhal Otitis Media and Mastoiditis with Effusion: A Symptom and a Clinical Entity" (Lantern Slides), J. M. ROBISON, Houston, Tex.

    Discussion opened by Edward A. Looper, Baltimore, Md.; J. W. Jervey, Greenville, S. C.; Hugh Miller, Kansas City, Missouri.

12. "Bacterial Allergy: Otolaryngological Aspects" (Lantern Slides), WATT W. EAGLE, Durham, N. C.

    Discussion opened by Robin Harris, Jackson, Miss.; M. M. Cullom, Nashville, Tenn.

13. "The Interpretation of the Hypertensive Fundus" (Lantern Slides), J. MASON BAIRD, GRADY E. CLAY and WM. T. EDWARDS, JR., Atlanta, Ga.

    Discussion opened by Ralph O. Rychener, Memphis, Tenn.; Wm. B. Clark, New Orleans, La.

Thursday, November 13, 9:00 a. m.

Municipal Auditorium

ROUND TABLE DISCUSSION

14. "Staphylococcus Keratoconjunctivitis," CECIL S. O'BRIEN, Professor of Ophthalmology, State University of Iowa College of Medicine, Iowa City, Iowa.

15. "Acute Otitis Media and Mastoiditis," ERNEST M. SEYDELL, Wichita, Kan.

Thursday, November 13, 2:00 p. m.

Municipal Auditorium

16. "Use of Various Sulfanilic Acid Derivatives in Trachoma" (Lantern Slides), K. W. COSGROVE and L. K. HUNDLEY, Little Rock, Ark.

    Discussion opened by Fred Loe, Minneapolis, Minn.; J. Wesley McKinney, Memphis, Tenn.

17. "Some Whys and Wherefores Relative to Nasal Sinus Histopathology" (Lantern Slides), JOSEPH D. HEITGER, Louisville, Ky.

    Discussion opened by Bernard J. McMahon, St. Louis, Mo.; John J. Shea, Memphis, Tenn.; Mercer G. Lynch, New Orleans, La.

18. "The Treatment of Glaucoma," CECIL S. O'BRIEN, Professor of Ophthalmology, State University of Iowa College of Medicine, Iowa City, Iowa.

19. "Lateral Sinus Thrombosis: Summary of Six Cases; Recent Developments in Treatment," J. DUDLEY SINGLETON, Dallas, Tex.

    Discussion opened by Charles D. Blassingame, Memphis, Tenn.; Lyle M. Sellers, Dallas, Tex.

20. "Exophthalmic Ophthalmoplegia" (Lantern Slides and Motion Pictures), RAY K. DAILY, LOUIS DAILY, HENRY J. PETERSEN and J. D. WALKER, Houston, Tex.

    Discussion opened by Theodore J. Dimitry, New Orleans, La.; Wm. H. Luedde, St. Louis, Mo.

21. "Nasal and Sinus Surgery: Critical Review of Causes of Unsuccessful End Results," A. R. HOLLENDER, Miami Beach, Fla.

    Discussion opened by Edley H. Jones, Vicksburg, Miss.; J. Hallock Moore, Huntington, W. Va.; French K. Hansel, St. Louis, Mo.

Election of Officers.

SECTION ON ANESTHESIA

Municipal Auditorium

Officers

Chairman—George S. Mechling, Oklahoma City, Okla.
Vice-Chairman—Russell F. Bonham, Houston, Tex.
Secretary—Merrill C. Beck, New Orleans, La.
Hosts from the St. Louis Medical Society—Edward H. Bowdern, Oda O. Smith and W. F. Neun.

Wednesday, November 12, 2:00 p. m.

Municipal Auditorium

1. Chairman's Address: "The Psychological Approach to a Patient for Anesthesia," GEORGE S. MECHLING, Oklahoma City, Okla.

2. "Modern Concepts of Cyclopropane Anesthesia" (Lantern Slides), RALPH M. TOVELL and RICHARD E. EDMONSON, Hartford, Conn.

   Discussion opened by Thomas M. Davis, St. Louis, Mo.

3. "Pentothal Sodium, Combined Anesthesia" (Lantern Slides), HAYWARD S. PHILLIPS and LINUS J. MILLER, Atlanta, Ga.

   Discussion opened by Merrill C. Beck, New Orleans, La.

4. "Recent Studies on Carbon Dioxide Absorption in Rebreathing Appliances," JOHN ADRIANI, New Orleans, La.

   Discussion opened by H. H. McCarthy, Clayton, Mo.

5. "The Continuous Spinal Anesthetic," WM. C. SCHAERRER, Kansas City, Mo.

   Discussion opened by Paul H. Lorham, Kansas City, Kan.; Ralph C. Coffey, Kansas City, Mo.

Thursday, November 13, 2:00 p. m.

Municipal Auditorium

6. "Apnea Neonatorum: Its Treatment by a Simplified Insufflation Technic" (Lantern Slides), PERRY P. VOLPITTO and RICHARD TORPIN, Augusta, Ga.

   Discussion opened by W. F. Neun, St. Louis, Mo.

7. "Clinical Conclusions on High Spinal Anesthesia," EUGENE G. WOLFF and H. BOYD STEWART, Tulsa, Okla.

   Discussion opened by J. T. Flynn, St. Louis, Mo.

8. "Individualized Anesthesia," HOWARD M. AUSHERMAN, Chattanooga, Tenn.

   Discussion opened by Thomas C. Campbell, Clayton, Mo.

9. "Continuous or Fractional Spinal Anesthesia" (Motion Pictures), JAMES F. DAVIDSON, Chevy Chase, Md.

   Discussion opened by Charles G. Obermeyer, St. Louis, Mo.

Election of Officers.

SECTION ON MEDICAL EDUCATION AND HOSPITAL TRAINING

Municipal Auditorium

Officers

Chairman—Harvey B. Haag, Richmond, Va.
Vice-Chairman—Russell F. Bonham, Houston, Tex.
Secretary—John W. Spies, Galveston, Tex.
Hosts from the St. Louis Medical Society—Frank R. Bradley, Leo V. Mulligan, Alphonse M. Schwitalla and Philip A. Shaffer.

Tuesday, November 11, 9:00 a. m.

Municipal Auditorium

1. Chairman's Address: "The Scope of Pharmacology" (Lantern Slides), HARVEY B. HAAG, Professor of Pharmacology, Medical College of Virginia, Richmond, Va.

2. "A Correlated Study Guide for Medical Students," E. LLOYD WILBUR, Professor of Pathology, and PAUL C. ESCHWEILER, Associate Professor of Medicine, University of Arkansas School of Medicine, Little Rock, Ark.

3. "The Distribution of Physicians in Louisiana with Special Reference to Those in Private Practice," B. I. BURNS, Dean and Professor of Anatomy, Louisiana State University School of Medicine, New Orleans, La.

4. "The Training of Medical Technicians" (Lantern Slides), L. W. DIGGS, Associate Professor of Medicine and Director of Clinical Laboratories, University of Tennessee College of Medicine, Memphis, Tenn.

5. ROUND TABLE DISCUSSION: "The Medical School and the National Defense Program." Participated in by administrative officers of all medical schools in the territory of the Southern Medical Association.

Election of Officers.

SECTION ON PUBLIC HEALTH

Municipal Auditorium

Officers

Chairman—Henry C. Ricks, Jackson, Miss.
Vice-Chairman—Harry F. Parker, Warrensburg, Mo.
Secretary—Hugh R. Leavell, Louisville, Ky.
Hosts from the St. Louis Medical Society—Hyman I. Spector, George D. Kettelkamp, Paul Murphy and Harriet Stevens Cory.

Wednesday, November 12, 9:00 a. m.

Municipal Auditorium

1. "A Milk-Borne Outbreak of Gastro-Enteritis in Oklahoma City" (Lantern Slides), (Mr.) IRVING M. TERZICH, Assistant Sanitary Engineer, County-City Health Department, Comanche County, Lawton, Okla.

   Discussion opened by (Mr.) O. C. Hopkins, Passed Assistant Sanitary Engineer, U. S. Public Health Service, District No. 7, Kansas City, Mo.

2. "Weil's Disease: An Epidemiological and Clinical Report of Fourteen Cases" (Lantern Slides), B. S. LESTER, Director, Medical Department, Sloss-Sheffield Steel and Iron Company; GEO. A. DENISON, Director of Laboratories and Assistant Health Officer, Jefferson County Board of Health; LOUIS C. POSEY, Pathologist, and GUY M. TATE (M.S.), Director, Bureau of Sanitary Engineering, Jefferson County Board of Health, Birmingham, Ala.

   Discussion opened by C. L. Williams, Medical Director, District No. 4, U. S. Public Health Service, New Orleans, La.; Carl L. Larson, Assistant Surgeon, U. S. Public Health Service, Bethesda, Md.

3. "A Study of Intestinal Parasites in Relation to Excreta Disposal Facilities in Cocke County, Tennessee, 1940" (Lantern Slides), C. B. TUCKER, Director, Division of Preventable Diseases, Tennessee Department of Public Health, Nashville, Tenn., and J. M. CHISHOLM, Assistant Surgeon, U. S. Public Health Service, Washington, D. C.

   Discussion opened by Alvin E. Keller, Associate Professor of Preventive Medicine, Vanderbilt University School of Medicine, Nashville, Tenn.; W. H. Y. Smith, Assistant Director, Bureau of Preventable Diseases, Alabama State Health Department, Montgomery, Ala.

4. "The Mental Hygiene Program in the Public Health Department," ARCHIBALD M. GAULOCHER, Associate in Charge, Division of Mental Hygiene, Alabama State Health Department, Montgomery, Ala.

   Discussion opened by Theodore A. Watters, Assistant Professor of Psychiatry and Neurology, Tulane University School of Medicine, New Orleans, La.; Victor Hugh Vogel, Passed Assistant Surgeon, U. S. Public Health Service, Washington, D. C.

5. "Meat-Borne Typhoid Outbreak in Tennessee" (Lantern Slides), PRICE H. DUFF, Director, Upper Cumberland District Health Department No. 2, Crossville, Tenn.

   Discussion opened by A. E. Hardison, Field Epidemiologist, Tennessee Department of Public Health, Nashville, Tenn.; W. K. Sharp, Surgeon, U. S. Public Health Service, Washington, D. C.

Wednesday, November 12, 2:00 p. m.

Municipal Auditorium

6. Chairman's Address: "The Laboratory Program of the Mississippi State Board of Health," HENRY C. RICKS, Director of Laboratory, Mississippi State Health Department, Jackson, Miss.

7. "Venereal Disease Control in the National Defense Program," GRADIE R. ROWNTREE, Assistant Director of Health, Louisville City Department of Health, and CLIFFORD M. FISCHBACK, Director of Bureau of Venereal Disease Control, Louisville City Department of Health, Louisville, Kentucky.

   Discussion opened by Russell E. Teague, Director, Bureau of Venereal Diseases, Kentucky State Department of Health, Louisville, Ky.; Vincil Rogers Deakin, Assistant Professor of Genitourinary Surgery, Washington University School of Medicine, St. Louis, Mo.

8. "Venereal Disease Control in St. Louis" (Lantern Slides), FREDERICK G. GILLICK, Supervisor, Venereal Control Section, St. Louis Health Division, and JOSEPH C. WILLET, Chief of Laboratories, St. Louis Health Division, St. Louis, Mo.

   Discussion opened by John V. Lawrence, Assistant Professor of Medicine, Washington University School of Medicine, St. Louis, Mo.; Goronwy O. Broun, Professor of Internal Medicine, St. Louis University School of Medicine, St. Louis, Missouri.

9. "Medical Phases of Industrial Hygiene as Related to the Work of Health Departments," J. G. TOWNSEND, Medical Director and Chief, Division of Industrial Hygiene, National Institute of Health, U. S. Public Health Service, Bethesda, Md.

   Discussion opened by Carl A. Nau, Director, Division of Industrial Hygiene, Texas State Health Department, Austin, Tex.; J. W. Dugger, Director, Division of Industrial Hygiene, Mississippi State Health Department, Jackson, Mississippi.

10. "Nutrition and Public Health," JOHN B. YOUMANS, Associate Professor of Medicine and Director of Postgraduate Instruction, Vanderbilt University School of Medicine, Nashville, Tenn.

    Discussion opened by Carl V. Reynolds, State Health Officer, Raleigh, N. C.

Election of Officers.

AMERICAN PUBLIC HEALTH ASSOCIATION
Southern Branch

Municipal Auditorium

Officers

President—Felix J. Underwood, Jackson, Miss.
First Vice-President—B. F. Wyman, Columbia, S. C.
Second Vice-President—(Mr.) Richard Messer, Richmond, Va.
Third Vice-President—(Miss) Pearl Barclay, Montgomery, Ala.
Secretary-Treasurer—P. E. Blackerby, Louisville, Ky.
Hosts from the St. Louis Medical Society—Joseph F. Bredeck, Edward G. McGavran and Leo W. Tucker.

Tuesday, November 11, 9:00 a. m.

Municipal Auditorium

GENERAL SESSION

Felix J. Underwood, President, presiding

1. President's Address: "Public Health in National Defense," FELIX J. UNDERWOOD, Executive Officer, Mississippi State Board of Health, Jackson, Miss.

2. "Integrating Mental Hygiene in the County-Wide Health Service," VICTOR H. VOGEL, Assistant Chief, Division of Mental Hygiene, U. S. Public Health Service, Washington, D. C.

   Discussion opened by Spafford Ackerly, Professor of Psychiatry, University of Louisville School of Medicine, Louisville, Ky.; Theodore A. Watters, Professor of Psychiatry, Tulane University School of Medicine, New Orleans, La.

3. "Investigations of Transfusion Donors with Positive Serological Tests," ALVIN E. KELLER, Department of Preventive Medicine and Public Health; RUDOLPH H. KAMPMEIER, Department of Medicine; and WILLIAM W. FRYE, Department of Preventive Medicine and Public Health, Vanderbilt University School of Medicine, Nashville, Tenn.

   Discussion opened by Hugh Leavell, City Health Officer, Louisville, Ky.; G. Foard McGinnes, State Department of Public Health, Nashville, Tenn.

4. "Coordination of School Health Education and Public Health Activities," J. F. KENDRICK, Rockefeller Foundation, Raleigh, N. C.

   Discussion opened by T. F. Abercrombie, Director, Georgia State Department of Health, Atlanta, Ga.; J. B. Black, Health Officer, Rutherford County, Murfreesboro, Tenn.

Tuesday, November 11, 12:30 noon

Meeting of Governing Council—Luncheon, Jefferson Hotel

Felix J. Underwood, President, presiding

Tuesday, November 11, 2:00 p. m.

Municipal Auditorium

GENERAL SESSION

Felix J. Underwood, President, presiding

5. "The South Carolina State-Wide Cancer Program," BEN F. WYMAN, Director, Rural Health Work, State Board of Health, Columbia, S. C.

   Discussion opened by C. L. Guyton, Director, Cancer Program in South Carolina, Columbia, S. C.; W. K. Sharp, Director, U. S. Public Health Service, District No. 2, Washington, D. C.

6. "The Expanded Role of the Sanitarian," (Mr.) H. A. KROEZE, Director of Public Health Engineering, Mississippi State Board of Health, Jackson, Miss.

   Discussion opened by (Mr.) W. Scott Johnson, Director of Public Health Engineering, Missouri State Board of Health, Jefferson City, Mo.; (Mr.) H. J. Darcy, Director of Public Health Engineering, Oklahoma State Board of Health, Oklahoma City, Okla.

7. "A Rural Shiga Dysentery Epidemic," F. W. CAUDILL, Epidemiologist, State Department of Health of Kentucky, Louisville, Ky., and J. T. DUNCAN, Health Officer, Adair County, Columbia, Ky.

   Discussion opened by J. F. Bowdoin, Assistant Director of Public Health, Georgia Department of Public Health, Atlanta, Ga.; R. E. Wheeler, Professor of Epidemiology, Vanderbilt University School of Medicine, Nashville, Tenn.

8. "The Present Status of Teaching Preventive Medicine and Public Health in Our Medical Schools," WILLIAM H. PERKINS, Dean, Jefferson Medical College of Philadelphia, Philadelphia, Pa.

   Discussion opened by J. H. Musser, Director, Department of Health, New Orleans, La.; W. B. Grayson, State Health Officer, Little Rock, Ark.

9. "Training of Medical Personnel in Syphilis Control," WILLIAM W. FRYE, Department of Preventive Medicine and Public Health, RUDOLPH H. KAMPMEIER, Department of Medicine, and W. S. LEATHERS, Dean and Professor of Preventive Medicine and Public Health, Vanderbilt University School of Medicine, Nashville, Tenn.

   Discussion opened by Arthur T. McCormack, State Health Commissioner, State Department of Health of Kentucky, Louisville, Ky.; Robert H. Riley, State Director of Health, Department of Health, Baltimore, Md.

Election of Officers.

Monday, November 10, 2:00 p. m.

Municipal Auditorium

PUBLIC HEALTH NURSING SECTION

Business Session, 2:00 p. m.—(Miss) Aurelia B. Potts, Nashville, Tenn., Chairman, presiding. Roll call by states, minutes of last meeting, report of committees and election of officers.

General Session, 3:00 p. m.—(Miss) Gladys Piper, Chairman, Program Committee, presiding.

Panel Discussion: "Where Should Emphasis be Placed in the School Health Program?"

(a) Discussion Leader: E. G. McGAVRAN, Director of Public Health, St. Louis County, Clayton, Mo.

(b) (Miss) McVEIGH HUTCHINSON, School Health Coordinating Service, State Board of Health, Raleigh, N. C.

(c) (Mrs.) ROSEMARY M. KENT, Health Education Coordinator, Norris, Tenn.

(d) (Miss) O'CONNOR GEORGE, Advisory Nurse, State Board of Health, Jackson, Miss.

(e) (Miss) MARY IRENE CUMMINS, Staff Nurse, Gibson County Health Department, Trenton, Tenn.

(f) (Miss) ELLA MAE HOTT, Director of Public Health Nursing, Missouri State Board of Health, Jefferson City, Missouri.

Tuesday, November 11, 12:30 p. m.

Luncheon Session

(Miss) Aurelia B. Potts, Chairman, presiding

"Nursing Education in Our Emergency," REV. ALPHONSE M. SCHWITALLA, S.J., Ph.D., Dean, St. Louis University School of Medicine, St. Louis, Mo.

Tuesday, November 11, 9:00 a. m.

SANITARY ENGINEERS' AND SANITATION OFFICERS' SECTION

Municipal Auditorium

Joint Session with National Malaria Committee—see page 1207 for program.

Wednesday, November 12, 7:00 p. m.

Section Dinner, DeSoto Hotel.

Thursday, November 13, 9:00 a. m.

Municipal Auditorium

(Mr.) W. Scott Johnson, Jefferson City, Mo., Chairman, presiding

Appointment of Committees.

Public Health Engineering in Southern National Defense Areas

1. "Milk and Food Sanitation," (Mr.) J. A. WILLMAN, Public Health Engineer, Muscogee County Health Department, Columbus, Ga.

2. "General Sanitation," (Mr.) DAVID B. LEE, Chief Sanitary Engineer, Florida State Board of Health, Jacksonville, Florida.

3. "Mosquito Control," (Mr.) JOHN L. PORTER, Assistant Chief, Division of Public Health Engineering, and Supervisor, Malaria-Mosquito Control Section, Louisiana State Board of Health, New Orleans, La.

4. Panel Discussion: "Public Health Engineering Activities in Southern National Defense Areas," led by W. SCOTT JOHNSON, Jefferson City, Mo.

   (a) "Activities of U. S. Army," U. S. Army representative.

   (b) "Activities of U. S. Public Health Service," (Mr.) E. C. SULLIVAN, Senior Sanitary Engineer, U. S. Public Health Service, District No. 4, New Orleans, La.

   (c) "Activities of State Health Department," Arkansas State Board of Health representative.

   (d) "Activities of Local Health Department," (Mr.) R. E. DORER, Assistant State Director, Malaria Control, State Health Department, Richmond, Va.

Thursday, November 13, 2:00 p. m.

Municipal Auditorium

5. "Inspection Program for Semi-Public Water Supply," (Mr.) E. C. HANDORF, Sanitary Engineer, Memphis City Health Department, Memphis, Tenn.

6. "The Part of the Local Public Health Engineer in Industrial Hygiene," (Mr.) CHARLES C. DILLS, Industrial Hygiene Engineer, Missouri State Board of Health, Jefferson City, Missouri.

7. "Interstate Water, Food and Milk Problems," (Mr.) E. J. HERRINGER, Associate Public Health Engineer, U. S. Public Health Service, Washington, D. C.

8. Chairman's Address: (Mr.) W. SCOTT JOHNSON, Jefferson City, Mo.

Business Meeting.

NATIONAL MALARIA COMMITTEE

Municipal Auditorium

Officers

Honorary Chairman—L. O. Howard, Washington, D. C.
Chairman—J. N. Baker, Montgomery, Ala.
Chairman-Elect—(Mr.) John H. O'Neill, New Orleans, La.
Vice-Chairman—(Mr.) W. H. W. Komp, Ancon, Canal Zone.
Secretary-Treasurer—Mark F. Boyd, Tallahassee, Fla.
Hosts from the St. Louis Medical Society—A. R. Shreffler, E. Lee Shrader, Edwin J. Schisler and D. M. Skilling, Jr.

Tuesday, November 11, 9:00 a. m.

Municipal Auditorium

Joint Session with the Sanitary Engineers' and Sanitation Officers' Section, Southern Branch, American Public Health Association, J. N. Baker, Chairman, National Malaria Committee, and (Mr.) W. Scott Johnson, Chairman, Sanitary Engineers' and Sanitation Officers' Section, presiding.

1. Chairman's Address: "A Long-Range Malaria Control Program," J. N. BAKER, Montgomery, Ala.

2. "Malaria-Control Ditch-Lining Experience in a South Georgia County" (Lantern Slides), (Mr.) JUSTIN ANDREWS, (Mr.) R. S. HOWARD, Georgia State Department of Health, Atlanta, Ga., and (Mr.) E. ARCHER TURNER, Public Health Engineer, Brooks County, Quitman, Ga.

   Discussion opened by (Mr.) C. Heard Field, Malaria Control Engineer, Chatham County Health Department, Savannah, Ga.

3. "Studies on the Choice of a Medium for Oviposition by *Anopheles quadrimaculatus* Say," (Mr.) HORACE O. LUND, Emory University Field Station, Newton, Ga.

   Discussion opened by (Mr.) G. H. Bradley, Bureau of Entomology and Plant Quarantine, New Smyrna Beach, Fla.

4. "The Design and Application of a New Type Automatic Siphon for Malaria Control," (Mr.) W. A. LEGWEN and (Mr.) R. S. HOWARD, JR., State Department of Health, Atlanta, Ga.

   Discussion opened by (Mr.) Justin Andrews, State Department of Health, Atlanta, Ga.; (Mr.) John M. Henderson, School of Tropical Medicine, San Juan, Puerto Rico.

5. "Circular Joint and Concrete Form Design for Precast Inverts," (Mr.) W. A. LEGWEN and (Mr.) LOUVA G. LENERT, State Department of Health, Atlanta, Ga.

   Discussion opened by (Mr.) Nelson H. Rector, State Board of Health, Jackson, Miss.; (Mr.) C. Heard Field, Chatham County Health Department, Savannah, Ga.

6. "Studies on Artificial Resting Places of *Anopheles quadrimaculatus* Say" (Lantern Slides), (Mr.) M. H. GOODWIN, JR., Emory University Field Station, Newton, Ga.

   Discussion opened by W. V. King, Bureau of Entomology, Department of Agriculture, Orlando, Fla.; and (Mr.) Gordon Smith, Assistant Entomologist, Tennessee Valley Authority, Paris, Tenn.

7. "Modernization of Antiquated Drainage Systems in Chatham County, Georgia," (Mr.) C. HEARD FIELD, Malaria Control Engineer, Chatham County Health Department, Savannah, Ga.

Wednesday, November 12, 9:00 a. m.

Municipal Auditorium

Business Session, J. N. Baker, Chairman, presiding

Consideration of regular and special business, reports of standing subcommittees, etc.

Thursday, November 13, 9:00 a. m.

Municipal Auditorium

Joint Session with the American Society of Tropical Medicine, J. N. Baker, Chairman, National Malaria Committee, and Thomas T. Mackie, President, American Society of Tropical Medicine, presiding.

8. "Species Eradication as a Practical Measure for Control of Mosquito-Borne Disease" (12 min.), FRED L. SOPER and D. BRUCE WILSON, Rockefeller Foundation, Rio de Janeiro, Brazil.

   Discussion opened by Paulo Antunes, Johns Hopkins School of Hygiene and Public Health, Baltimore, Md.

9. "Effect of New Chemotherapeutic Agents on Human and Experimental Malaria" (10 min.), L. T. COGGESHALL, School of Public Health, University of Michigan Medical School, Ann Arbor, Mich., and J. MAIER, International Health Division, Rockefeller Foundation, Rockefeller Institute, New York, N. Y.

10. "Observations on Malaria Around Lake Wilson, Alabama, 1934-1940" (12 min.), R. B. WATSON, Tennessee Valley Authority, Wilson Dam, Ala.

    Discussion opened by Mark F. Boyd, International Health Division, Rockefeller Foundation, Tallahassee, Fla.

11. "Chemoprophylaxis in Malaria. Atabrine vs. Quinine: A Review of the World Literature" (Lantern Slides) (12 min.), Z. BERCOVITZ, Bellevue Hospital, New York, New York.

12. "Immunity in the Pigeon Strain of *Plasmodium relictum*" (Lantern Slides) (10 min.), W. B. REDMOND, Emory University School of Medicine, Atlanta, Ga.

13. "The Course of *Plasmodium cathemerium* Malaria in One Hundred and Fifty Canaries Infected by Mosquito Bite" (Lantern Slides) (12 min.), HARRY BECKMAN, Marquette University School of Medicine, Milwaukee, Wis.

14. "A Pathological Study of *Macaccus rhesus* with Acute *Plasmodium knowlesi* Infection" (12 min.), R. H. RIGDON and W. K. STRATMAN-THOMAS, University of Tennessee College of Medicine, Memphis, Tenn.

AMERICAN SOCIETY OF TROPICAL MEDICINE

Municipal Auditorium

Officers

President—Thomas T. Mackie, New York, N. Y.
President-Elect—Ernest Carroll Faust, New Orleans, La.
Vice-President—Fred L. Soper, Rio de Janeiro, Brazil.
Secretary-Treasurer—E. Harold Hinman, Wilson Dam, Ala.
Editor—Charles F. Craig, San Antonio, Tex.

Councilors—N. Paul Hudson, Columbus, O.; Mark F. Boyd, Tallahassee, Fla.; Alfred C. Reed, San Francisco, Calif.; Rolla E. Dyer, Washington, D. C.; Henry E. Meleney, New York, N. Y.; L. T. Coggeshall, Ann Arbor, Mich.; Jean A. Curran, Brooklyn, N. Y.; and T. J. LeBlanc, Cincinnati, O.

Hosts from the St. Louis Medical Society—Fritz Neuhoff, Henry C. Allen, Lawrence Schlenker and Wm. H. Olmsted.

Monday, November 10, 6:00 p. m.

Statler Hotel

Annual dinner and business meeting of the Officers and Councilors of the Society.

Tuesday, November 11, 9:00 a. m.

Municipal Auditorium

1. "Report of Ten Years' Study on Deficiency Diseases" (Lantern Slides) (12 min.), TOM D. SPIES, RICHARD W. VILTER and WILLIAM B. BEAN, Cincinnati General Hospital, Cincinnati, O.

2. "Elephantiasis Due to Lymphopathia Venereum: A Note on Its Significance and the Effect of Sulfanilamide" (Lantern Slides) (12 min.), R. H. KAMPMEIER and R. M. LARSEN, Vanderbilt University Hospital, Nashville, Tenn.

3. The Sixth Charles Franklin Craig Lecture on Tropical Medicine: "The Known and the Unknown in Plague," K. F. MEYER, George William Hooper Foundation, San Francisco, Calif.

4. The Bailey K. Ashford Award in Tropical Medicine* to LLOYD E. ROZEBOOM, Johns Hopkins School of Hygiene and Public Health, Baltimore, Md.

5. "Tropical Neurasthenia" (Read by title), ALFRED C. REED, University of California, San Francisco, Calif.

6. "Further Studies on Heat Depression of Resistance to Infection and Immune Body Production" (Lantern Slides) (12 min.), LEON SCHMIDT and C. A. MILLS, Cincinnati General Hospital, Cincinnati, O.

7. "Reaction of the Chorio-Allantoic Membrane of the Developing Chick to Inoculation with Some Mycobacteria" (Lantern Slides) (12 min.), MORRIS MOORE, Barnard Free Skin and Cancer Hospital, St. Louis, Mo.

8. "Experimental Transmission of Relapsing Fever in Young Birds" (10 min.), J. V. IRONS and S. W. BOHLS, Texas State Health Department, Austin, Tex.

9. "Immunity Reactions in Experimental Relapsing Fever" (Read by title), Y. P. CHEN, S. H. ZIA and H. H. ANDERSON, Peiping Union Medical College, Peiping, China.

Brief Business Session.

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*This award of $1,000 has been made available through the generosity of Eli Lilly & Co., Indianapolis, Ind.

Tuesday, November 11, 2:00 p. m.

Municipal Auditorium

10. "Apparent Recent Extension of Typhus in the United States" (Lantern Slides) (12 min.), N. H. TOPPING and ROLLA E. DYER, National Institute of Health, Bethesda, Maryland.

11. "The Use of the Mouse Lung for the Propagation of the Rickettsiae of Epidemic Typhus" (Lantern Slides) (10 min.), H. A. DETTWILER, Eli Lilly & Co., Indianapolis, Indiana.

12. "Results of Intracardial Injection of Ten Strains of *Torula histolytica* (*Cryptococcus hominis*) into Monkeys" (Read by title), JOHN F. KESSEL, University of Southern California School of Medicine, Los Angeles, Calif.

13. "The Keg Shelter as a Diurnal Resting Place of *Anopheles quadrimaculatus*" (Lantern Slides) (10 min.), GORDON E. SMITH, Tennessee Valley Authority, Paris, Tenn.

14. "Studies on Copper Arsenite, a New Anopheline Larvicide" (Lantern Slides) (10 min.), E. HAROLD HINMAN, R. L. CROWELL and H. S. HURLBUT, Tennessee Valley Authority, Wilson Dam, Ala.

15. "Amebic and Bacillary Colitis in the New Orleans Area: Preliminary Report" (Lantern Slides) (12 min.), JOSEPH S. D'ANTONI, Tulane University School of Medicine, New Orleans, La.

16. "The Prevalence of Amebiasis in the Western Hemisphere" (Lantern Slides) (12 min.), ERNEST CARROLL FAUST, Tulane University School of Medicine, New Orleans, La.

17. "The Occurrence of Two Significantly Distinct Races of *Endamoeba histolytica*" (Lantern Slides) (12 min.), JAMES J. SAPERO, ERIK G. HAKANSSON and C. M. LOUTTIT, U. S. Naval Medical School, Washington, D. C.

18. "The Evaluation of Culture Method as an Aid in the Diagnosis of Amebiasis" (12 min.), H. TSUCHIYA, Washington University School of Medicine, St. Louis, Mo.

19. "The Influence of the Bacterial Flora on the Cultivation of *Endamoeba histolytica*" (Lantern Slides) (12 min.), BEN D. CHINN, LEON JACOBS and LUCY V. REARDON, St. Elizabeth's Hospital and National Institute of Health, Washington, D. C.

20. "Amebiasis and Hookworm Infection as Found in Approximately 50,000 Fecal Examinations in Mississippi" (Lantern Slides) (10 min.), HANNAH NICKEL, Louisiana State Board of Health, Centreville, Miss.

Tuesday, November 11, 8:00 p. m.

General Session, President's Night, of the Southern Medical Association, Jefferson Hotel.

Wednesday, November 12, 12:00 noon

Statler Hotel

Annual Luncheon of the Society

21. President's Address: "Observations on the Early History of Tropical Medicine, THOMAS T. MACKIE, New York, New York.

Wednesday, November 12, 2:00 p. m.

Municipal Auditorium

22. "Relation of Hookworm Burden to Physical Status in Georgia" (Lantern Slides) (12 min.), ARTHUR W. HILL and JUSTIN ANDREWS, Georgia Department of Public Health, Atlanta, Ga.

23. "Maturation of *Ascaris* Eggs in Sea Water: A Possible Factor in Dissemination of Ascariasis in American Samoa" (12 min.), PAUL W. WILSON, U. S. Naval Medical School, Washington, D. C.

24. "The Incidence of *Trichinella spiralis* in a Random Sampling and Other Samplings of the Population of the United States" (Lantern Slides) (12 min.), WILLARD H. WRIGHT, K. B. KERR and LEON JACOBS, National Institute of Health, Bethesda, Md.

25. "The Incubation Period of Trichinosis" (Lantern Slides) (10 min.), O. R. McCOY, University of Rochester School of Medicine, Rochester, N. Y.

26. "Guinea Worms, *Dracunculus sp.*, in East Texas" (Lantern Slides) (10 min.), ASA C. CHANDLER, Rice Institute, Houston, Tex.

27. "Intestinal Parasite Infections Among In-Patients of the Indiana University Medical Center Hospitals," WILLIAM HUGH HEADLEE, Purdue University, Lafayette, Ind.

28. "The Natural Pattern of Dilution Counts of Helminth Eggs" (Lantern Slides) (10 min.), J. ALLEN SCOTT, Georgia State Health Department, Statesboro, Ga.

29. "The Use of Aqueous Smears in the Examination of Feces for Intestinal Protozoa" (12 min.), E. G. HAKANSSON, U. S. Naval Medical Center, Washington, D. C.

30. "Probabilities of Detecting Intestinal Protozoa by Consecutive Stool Examinations" (Lantern Slides) (10 min.), W. G. SAWITZ, ERNEST CARROLL FAUST and J. F. THOMSON, Tulane University School of Medicine, New Orleans, Louisiana.

31. "Venomous Snakes. Some Central American Records. Incidence of Snake-Bite Accidents" (Lantern Slides) (12 min.), HERBERT C. CLARK, Gorgas Memorial Laboratory, Panama, R. de P.

32. "Application of the Federal Food, Drug and Cosmetic Act to Drugs Used in the Treatment of Tropical Diseases," ERNEST Q. KING, Food and Drug Administration, Washington, D. C.

Wednesday, November 12, 7:00 p. m.

Statler Hotel

Eighth Annual Dinner of the American Academy of Tropical Medicine.

Thursday, November 13, 9:00 a. m.

Municipal Auditorium

Joint Session with the National Malaria Committee. See National Malaria Committee, page 1207, for program.

AMERICAN ACADEMY OF TROPICAL MEDICINE

Meeting conjointly with American Society of Tropical Medicine.

Officers

President—Marshall A. Barber, Memphis, Tenn.
Vice-President—Herbert C. Clark, Panama, R. de P.
Secretary—Ernest Carroll Faust, New Orleans, La.
Treasurer—Thomas T. Mackie, New York, N. Y.

Wednesday, November 12, 7:00 p. m.

Statler Hotel

Eighth Annual Dinner of the American Academy of Tropical Medicine, GEORGE R. CALLENDER, Colonel, Medical Corps, U. S. Army, Washington, D. C., Toastmaster. W. W. CORT, Baltimore, Md., will present the Theobold Smith Gold Medal of the George Washington University to E. R. STITT, Admiral, Medical Corps, U. S. Army (Retired). Following the award there will be the Presidential Address of MARSHALL A. BARBER, Memphis, Tennessee, entitled "The Human Side of Malaria Research."

WOMAN'S AUXILIARY TO THE SOUTHERN MEDICAL ASSOCIATION

EIGHTEENTH ANNUAL MEETING

Officers

President—Mrs. M. Pinson Neal, Columbia, Mo.
President-Elect—Mrs. J. Ullman Reaves, Mobile, Ala.
First Vice-President—Mrs. W. T. Wootton, Hot Springs, Ark.
Second Vice-President—Mrs. Philip E. Blackerby, Louisville, Ky.
Corresponding Secretary—Mrs. Harry M. Gilkey, Kansas City, Mo.
Recording Secretary—Mrs. Floyd F. Kirby, Waco, Tex.
Treasurer—Mrs. Harvey F. Garrison, Jackson, Miss.
Historian—Mrs. W. A. Knolle, New Orleans, La.
Parliamentarian—Mrs. B. Y. Alvis, St. Louis, Mo.

Standing Committees—

Custodian of Records—Miss Grace Stroud, Louisville, Ky.
Research—Mrs. W. M. Salter, Anniston, Ala.
Memorial—Mrs. John Pierpont Helmick, Fairmont, W. Va.
Resolutions—Mrs. L. S. Thompson, Dallas, Tex.
Jane Todd Crawford—Mrs. Luther Bach, Bellevue, Ky.
Budget—Mrs. Lowry Rush, Meridian, Miss.

Monday, November 10

Registration will begin at 10:00 a. m. at the Jefferson Hotel, Mezzanine Floor.

Monday, November 10

12:00 noon to 2:00 p. m.—Informal reception, Jefferson Hotel. The members of the Woman's Auxiliary to the St. Louis Medical Society will greet the visiting ladies attending the Southern Medical Association meeting. 3:00 p. m.—Tour of the buildings of special interest on the campus of Washington University: Woman's Building, Ridgely Hall, January Hall, Law Library, and others. Private cars to convey visiting ladies will leave Jefferson Hotel at 2:15 p. m. 3:30 p. m.—Organ music in Graham Memorial Chapel, Washington University, under the direction of Miss Beatice E. Hays. 4:00 p. m.—Chancellor George Throop, Washington University, and Mrs. Throop, will be at home to the visiting ladies and their escorts at the Chancellor's residence. 6510 Ellenwood Avenue. Private cars will return visiting ladies to their hotels following this reception. 8:00 p. m.—General Public Session, Jefferson Hotel, Gold Room.

Tuesday, November 11, 8:00 a. m.

Executive Board Meeting and Breakfast, Woman's Auxiliary to the Southern Medical Association, Jefferson Hotel.

Tuesday, November 11, 10:00 a. m.

Jefferson Hotel

Mrs. M. Pinson Neal, President, presiding

All women attending the Southern Medical Association meeting are cordially invited to attend.

Call to order by the President.

Invocation—The Very Rev. Sidney E. Sweet, Dean of Christ Church Cathedral, St. Louis.

Address of Welcome, Mrs. August A. Werner, President, Woman's Auxiliary to the St. Louis Medical Society, St. Louis.

Address of Welcome, Mrs. James Drace, President, Woman's Auxiliary to the Missouri State Medical Association, Cape Girardeau.

Response to the Address of Welcome, Mrs. E. Latane Flannagan, President, Woman's Auxiliary to the Medical Society of Virginia, Richmond, Va.

Greetings from the Advisory Committee of the Southern Medical Association: Dr. Paul H. Ringer, President, Asheville, N. C.; Dr. Hamilton W. McKay, Chairman of Council, Charlotte, N. C.; and Mr. C. P. Loranz, Secretary-Manager, Birmingham, Ala.

Address: Mrs. Roscoe E. Mosiman, President of Woman's Auxiliary to the American Medical Association, Seattle, Wash.

Presentation of Mrs. Frank N. Haggard, President-Elect of the Woman's Auxiliary to the American Medical Association, San Antonio, Tex.

Presentation of Mrs. J. Ullman Reaves, President-Elect of the Woman's Auxiliary to the Southern Medical Association, Mobile, Ala.

Recognition of Officers and Chairmen of Standing Committees of the Woman's Auxiliary to the Southern Medical Association.

Recognition of Councilors and State Presidents.

Recognition of Past Presidents of the Woman's Auxiliary to the Southern Medical Association.

Count of States.

In Memoriam Service, Mrs. John Pierpont Helmick, Chairman, Fairmont, W. Va.

Adjournment.

Tuesday, November 11, 12:30 noon

Chase Hotel, Starlight Roof

Annual Luncheon of the Auxiliary. All women attending the Southern Medical Association meeting are cordially invited to attend. Luncheon tickets, $1.75.

Mrs. M. Pinson Neal, President, presiding

Call to order by the President.

Recognition of Chairmen of Entertainment.

Recognition of Mrs. J. Ullman Reaves, President-Elect of the Woman's Auxiliary to the Southern Medical Association, Mobile, Ala.

Recognition of Past Presidents of the Woman's Auxiliary to the Southern Medical Association.

Presentation of Distinguished Guests.

Address: Dr. Frank H. Lahey, President, American Medical Association, Boston, Mass.

Fashion Show and Music.

Adjournment.

Tuesday, November 11, 8:00 p. m.

General Session of the Southern Medical Association (President's Night), followed by the President's Reception and Grand Ball, Jefferson Hotel, Gold Room.

Wednesday, November 12, 9:30 a. m.

Jefferson Hotel

Mrs. M. Pinson Neal, President, presiding

All women attending the Southern Medical Association meeting are cordially invited to attend.

Call to order by the President.

Minutes, Mrs. Floyd F. Kirby, Recording Secretary, Waco, Tex.

Report of Credentials and Registration.

Report of Officers and Standing Committees.

Report from State Councilors.

Old Business.

New Business.

Courtesy Resolutions, Mrs. L. S. Thompson, Chairman, Dallas, Texas.

Report of Nominating Committee.

Election of Officers.

Installation of Officers by Mrs. Charles E. Oates, Little Rock, Arkansas.

Presentation of Gavel to the incoming President, Mrs. J. Ullman Reaves, by Mrs. M. Pinson Neal, retiring President.

Announcements.

Adjournment.

Wednesday, November 12, 1:00 p. m.

Luncheon at St. Louis Woman's Club, 4600 Lindell Boulevard. Luncheon tickets, $1.50.

Recognition of Mrs. J. Ullman Reaves, President-Elect.

Recognition of Officers, Chairmen and Councilors.

Following the luncheon, busses will leave for conducted tour—Arts, Forest Park Area, Missouri Botanical Gardens, and other points of interest. Tour tickets, $1.00.

Wednesday, November 12, 4:00 p. m.

Tea given by the Woman's Club of St. Louis University School of Medicine at the home of Dr. and Mrs. Louis Rassieur, Topping Road, St. Louis County. Busses on the tour will convey visiting ladies to the tea and return them to their hotels.

Wednesday, November 12

Post-Convention meeting of the Executive Board, Mrs. J. Ullman Reaves, President-Elect, Mobile, Ala. (Time and place to be announced at the meeting.)

COUNCIL, Woman's Auxiliary to the Southern Medical Association

(All are Members of the Executive Board)

Expire 1941—
Kentucky—Mrs. John M. Blades, Butler.
Louisiana—Mrs. Wiley R. Buffington, New Orleans.
Maryland—
Mississippi—Mrs. R. H. Clark, Hattiesburg.
Missouri—Mrs. August A. Werner, St. Louis.
North Carolina—Mrs. J. Buren Sidbury, Wilmington.

Expire 1942—
Oklahoma—Mrs. G. H. Garrison, Oklahoma City.
South Carolina—Mrs. C. C. Ariail, Greenville.
Tennessee—Mrs. H. E. Christenberry, Knoxville.
Texas—Mrs. Frank N. Haggard, San Antonio.
Virginia—Mrs. Hawes Campbell, Venter.
West Virginia—Mrs. R. H. Walker, Charleston.

Expire 1943—
Alabama—Mrs. E. H. Hargis, Birmingham.
Arkansas—Mrs. W. R. Brooksher, Fort Smith.
District of Columbia—Mrs. Oscar B. Hunter, Washington.
Florida—Mrs. John A. Beals, Jacksonville.
Georgia—Mrs. O. S. Cofer, Atlanta.

PAST PRESIDENTS, Woman's Auxiliary to the Southern Medical Association

(All are Members of the Executive Board)

1925, Mrs. E. H. Cary, Dallas, Texas.
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Wednesday Luncheon Committee—Mrs. Cyrus E. Burford, Chairman, and Mrs. William H. Vogt.

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GOLF TOURNAMENT

The twenty-first annual golf tournament for men of the Southern Medical Association will be held at the Algonquin Country Club, St. Louis. The tournament will consist of one eighteen hole round of medal play and entrants are privileged to play any time from Monday, November 10, through Wednesday, November 12. A player must specify his handicap before starting tournament play. Each golfer should wear the official badge when visiting the golf club.

The four major trophies will be played for again this year. The *Daily Oklahoman* Cup, in play since 1938, for low gross, junior class (physicians under 50 years of age). The Ralston Purina Cup, in play since 1935, for low gross senior class (physicians over 50 years of age). The Schwarzschild Trophy, in play since 1933, for runner up in low gross. The *Dallas Morning News* Cup, in play since 1925, for the net handicap tournament. All these trophies are to be played for each year until won three times in succession by the same golfer.

In addition to the four major trophies mentioned above other valuable prizes donated by various St. Louis and outside business concerns are to be donated as follows: lowest number of putts, highest number of putts, highest gross score, the lowest score on a blind hole and kickers' handicap. In addition to these trophies and prizes, a worth-while donation will be given for each birdie.

Players in attendance at the Southern Medical Association meeting and wearing the official badge will be accorded playing privileges at the Algonquin Country Club, greens fees $1.50.

Arrangements have also been made for women physicians and doctors' wives to play at the Algonquin Country Club any time during the Southern Medical Association meeting, greens fees $1.00.

Dr. Leo Bartels, 650 Century Building, St. Louis, is Chairman of the Golf Committee, and associated with him are Dr. Fred W. Bailey, Dr. Cecil Charles, Dr. O. C. Pfeifer and Dr. Jerome Simon.

TRAP AND SKEET SHOOTING TOURNAMENT

The sixteenth annual trap shooting tournament of the Southern Medical Association, to which skeet has been added in recent years, will be held over the traps of the Creve Coeur Gun Club on Olive Street Road, fifteen miles west of the city limits, St. Louis, on Wednesday, November 12, at 1:00 p. m. Cars to convey shooters to the field will leave the Jefferson and Coronado Hotels promptly at 12:00 noon. Those shooters desiring transportation should so indicate at registration headquarters.

The program will consist of 100 targets, standard 16-yard rise, and fifty targets of skeet.

Trophies

One hundred 16-yard targets. The major trophy, a leg on the *Atlanta Journal* Bowl, to be shot for each year until a leg is won three times by the same shooter, and which has been competed for since 1926, will be in competition again this year, the leg to go to the high gun in 100 targets. High gun in addition will also receive a prize, but will not be eligible for class prize.

Additional prizes will be awarded in three classes, A, B and C.

Fifty skeet targets. The major trophy, a leg on the Sharp & Dohme Bowl, to be shot for each year until a leg is won three time in succession by the same shooter, and which was in the shoot four years ago for the first time, will be in competition again this year, the leg to go to the high gun in 50 targets. High gun in addition will also receive a prize, but will not be eligible for class prize.

Additional prizes will be awarded in three classes, A, B and C.

High overall, 100 16-yard targets and 50 skeet targets. The major trophy, a leg on the Mallinckrodt Chemical Works Bowl, to be shot for each year until a leg is won three times in succession by the same shooter, and which has been competed for since 1935, will be in competition again this year, the leg to go to the high gun overall. High gun overall in addition will also receive a prize.

Classes

Lewis Class Division of the trophies. All shooters classify themselves into classes A, B and C by their scores made in the events.

Rules

With the exception of the methods used in classifying shooters, A.T.S.A. and N.S.S.A. rules will govern.

Shooting will start promptly at 1:00 p. m. and it is most essential that everyone be on time; otherwise the program cannot be finished before dark.

A referee will call dead or lost targets after each shot; he will interpret all rules; his decision will be final.

All ties will be shot off at twenty-five targets.

The Committee requests shooters to bring their own guns, but will have on hand several trap and skeet guns which will be available when desired, at no extra cost to the shooter. Shells of all popular makes and gauges must be purchased on the club grounds.

Dr. John W. Hotz, 607 North Grand Boulevard, St. Louis, is Chairman and Dr. David L. Penney, 319 Wall Building, St. Louis, is Co-Chairman and Acting Chairman of the Trap Shooting Committee, and associated with them are Dr. Leo Will, Dr. A. M. Alden, and Dr. A. N. Arneson.

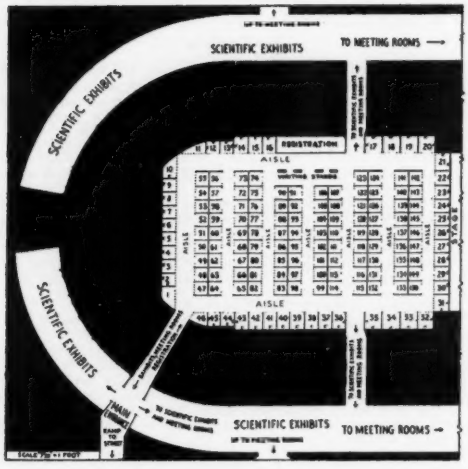
EXCERPTS FROM THE BY-LAWS

Sec. 3. Except by special order, the order of exercises, papers and discussions as set forth in the official program will be followed from day to day until it has been completed, and all papers omitted will be recalled in regular order.

Sec. 4. No address or paper before the Association, or any of its sections, except the addresses of the President and Orators, shall occupy more than twenty minutes in its delivery; and no member shall speak longer than five minutes, nor more than one time on any subject, provided each essayist be allowed ten minutes in which to close the discussion.

Sec. 5. All papers before the Association, or any of its sections, shall be the property of the Association. Each paper shall be deposited with the Secretary when read, or within ten days thereafter.

Sec. 6. No paper shall be published except upon recommendation of the Publication Committee, which shall consist of the Secretary as Chairman, with the Chairman and Secretary of each section as its constant members.



TECHNICAL EXHIBITS

Municipal Auditorium

The Technical Exhibits, always a feature of the annual meeting, will be up to the usual high standard for the St. Louis meeting. There will be uniform booths and the whole layout will be found very attractive. The Technical Exhibits are very definitely a scientific and educational part of the annual meeting, where much can be learned. The physicians will find the exhibitors courteous and anxious to answer any questions that may be asked, no physician being solicited to purchase any item.

Here follow the names of the firms who have reserved space and their space number:

	Space No.
Abbott Laboratories, North Chicago, Ill.	72– 73
Agfa Ansco, Binghamton, N. Y.	7
Aloe Company, A. S., St. Louis, Mo.	91-92-93-94-95
American Hospital Supply Corporation, Chicago, Ill.	132
American Optical Company, Southbridge, Mass.	119–120
American Safety Razor Corporation, Brooklyn, N. Y.	87
Armour Laboratories, The, Chicago, Ill.	98
Ayerst, McKenna & Harrison, Ltd., Montreal, Quebec, Canada	28
Bard-Parker Company, Inc., Danbury, Conn.	121
Becton, Dickinson & Co., Rutherford, N. J.	53
Bilhuber-Knoll Corporation, Orange, N. J.	64
Borden Company, The, New York, N. Y.	50
Burdick Corporation, The, Milton, Wis.	142
Camp & Company, S. H., Jackson, Mich.	24
Castle Company, Wilmot, Rochester, N. Y.	29
Carnation Company, Oconomowoc, Wis.	133–134
Ciba Pharmaceutical Products, Inc., Summit, N. J.	105–106
Collins, Inc., Warren E., Boston, Mass.	1
Conformal Footwear Company, St. Louis, Mo.	137
Cream of Wheat Corporation, Minneapolis, Minn.	109
Davies, Rose & Company, Ltd., Boston, Mass.	110
Davis & Geck, Inc., Brooklyn, N. Y.	11
Davis Sales Company, R. B., Hoboken, N. J.	67
Devereux Schools, Devon, Pa.	68
DeVilbiss Company, The, Toledo, Ohio	70
Dick X-Ray Company, The, St. Louis, Mo.	127–128
Doho Chemical Corporation, The, New York, N. Y.	147
Duke Laboratories, Inc., Stamford, Conn.	150
Eastman Kodak Company, Rochester, N. Y.	122–123
Emerson Company, J. H., Cambridge, Mass.	71
Fischer & Company, Inc., H. G., Chicago, Ill.	38
Foregger Company, The, New York, N. Y.	130
General Electric X-Ray Corporation, Chicago, Ill.	14-15-16
Gradwohl Laboratories, St. Louis, Mo.	148
Hamilton-Schmidt Surgical Company, St. Louis, Mo.	43
Heinz Company, H. J., Pittsburgh, Pa.	30– 31
Hoeber, Incorporated, Paul B., New York, N. Y.	80
Hoffman-LaRoche, Inc., Nutley, N. J.	34– 35
Horlick's Malted Milk Corporation, Racine, Wis.	27
Hynson, Westcott & Dunning, Inc., Baltimore, Md.	65– 66
Johnson & Johnson, New Brunswick, N. J.	112
Jones Metabolism Equipment Company, Chicago, Ill.	26
Kelley-Koett Mfg. Company, Covington, Ky.	19– 20
Kellogg Company, Battle Creek, Mich.	131
Knox Gelatine Co., Inc., Charles B., Johnstown, N. Y.	25
Lakeside Laboratories, Inc., The, Milwaukee, Wis.	144–145
Lea & Febiger, Philadelphia, Pa.	118
Lederle Laboratories, Inc., New York, N. Y.	48
Eli Lilly & Company, Indianapolis, Ind.	74-75-76-77-78-79
Lippincott Company, J. B., Philadelphia, Pa.	47
M & R Dietetic Laboratories, Inc., Columbus, Ohio	113–114
Macmillan Company, The, New York, N. Y.	10
Majors Company, J. A., New Orleans, La.	45
Mallinckrodt Chemical Works, St. Louis, Mo.	135
Maltine Company, The, New York, N. Y.	129
Mead Johnson & Company, Evansville, Ind.	21– 22
Medical Bureau, The, Chicago, Ill.	49
Mellin's Food Company, Boston, Mass.	104
Merck & Company, Rahway, N. J.	107–108
Merrell Company, The William S., Cincinnati, Ohio	39– 40
Mosby Company, C. V., St. Louis, Mo.	89– 90
Nestle's Milk Products, Inc., New York, N. Y.	138
Parke, Davis & Company, Detroit, Mich.	2-3-4-5-6
Patterson Screen Company, The, Towanda, Pa.	111
Pelton & Crane Company, The, Detroit, Mich.	32
Pet Milk Sales Corporation, St. Louis, Mo.	83-84-85-86
Petrogalar Laboratories, Inc., Chicago, Ill.	56– 57
Picker X-Ray Corporation, New York, N. Y.	41– 42
Poythress & Company, Inc., William P., Richmond, Va.	23
Prior Company, Inc., W. F., Hagerstown, Md.	124
Puritan Compressed Gas Corporation, Kansas City, Mo.	88
Radium Chemical Company, New York, N. Y.	97
Ralston Purina Company, St. Louis, Mo.	44
Riggs Optical Company, Chicago, Ill.	146
S. M. A. Corporation, Chicago, Ill.	58-59-60-61
Sanborn Company, Cambridge, Mass.	149
Sandoz Chemical Works, Inc., New York, N. Y.	96
Saunders Company, W. B., Philadelphia, Pa.	46
Scanlon-Morris Company, Madison, Wis.	12– 13
Schering Corporation, Bloomfield, N. J.	69
Searle & Company, G. D., Chicago, Ill.	139-140-141
Shampaine Company, St. Louis, Mo.	136
Sharp & Dohme, Philadelphia, Pa.	99-100-101-102-103
Smith, Kline & French Laboratories, Philadelphia, Pa.	8
Squibb & Sons, E. R., New York, N. Y.	115-116-117
Standard X-Ray Company, Chicago, Ill.	33
Stearns & Company, Frederick, Detroit, Mich.	54– 55
Storz Instrument Company, St. Louis, Mo.	9
U. S. Vitamin Corporation, New York, N. Y.	143
Westinghouse X-Ray Co., Inc., Long Island City, N. Y.	125–126
Winthrop Chemical Company, New York, N. Y.	36– 37
White Laboratories, Inc., Newark, N. J.	51– 52
Wocher & Son Company, The Max, Cincinnati, Ohio	62– 63
Wyeth & Brother, Inc., John, Philadelphia, Pa.	17-18-81-82

Southern Medical Journal

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M. Y. DABNEY, M.D., Editor
C. P. LORANZ, Secretary, Treasurer and General Manager

Volume 34 NOVEMBER 1941 Number 11

EDITORIAL DEPARTMENT

SOUTHERN MEDICAL ASSOCIATION
Thirty-Fifth Annual Meeting
St. Louis, Missouri, November 10-13, 1941

ST. LOUIS MEETING

The program of the St. Louis meeting and complete details of arrangements are given in this issue on pages 1187-1212 and speak ably for themselves of the coming convention. Names of speakers are known to Southern Medical readers. Few large cities in Southern Medical territory can boast two outstanding medical schools such as has St. Louis. The local medical profession will provide fine clinics for Monday afternoon and Tuesday forenoon. Section and group meetings promise to be instructive on a great variety of subjects and in every way entertaining.

The meeting opens at noon Monday, November 10, and will continue through Thursday afternoon.

SULFADIAZINE

Isolation of bacterial causes of disease was the high point and focus of medical investigation in the Nineteenth Century. Immediately after this came vaccination and prophylaxis. For fifty years after Pasteur, very little progress was made in specific therapy of the infectious diseases. Ehrlich and the antisyphilitics began the wedge action of chemotherapy against micro-organisms in the human host. However, nearly a quarter century passed before the sulfanilamide group began coming to the fore as possibly active against everything that the antisyphilitics have failed to help.

A recent addition to the sulfonamide group is sulfadiazine, which has been extensively investigated and favorably reported upon. Perrin Long[1 2 3] and his associates at Johns Hopkins University and Hospital have reviewed its activity both clinically and in laboratory animals in the last number of the *Bulletin of the Johns Hopkins Hospital*. They have also closely compared its effects with those of sulfanilamide, sulfapyridine, and sulfathiazole.

This preparation is closely related to sulfapyridine, since it is a 2-sulfanilamide-pyrimidine. The pyridine group contains one nitrogen atom in a benzene ring; the pyrimidine contains three. In the treatment of pneumococcal infections in mice, sulfadiazine was less effective than sulfathiazole if the same level of each drug was maintained in the blood stream of the animals. However, sulfadiazine is less toxic than the former drug, and concentrations of 25 milligrams per cent of it could be obtained by feeding a diet containing 0.5 per cent of the drug. At this level, sulfadiazine was quite effective. It was not injurious to the tissues. Because high concentrations of sulfadiazine could be maintained without injury, sulfadiazine seemed to promise to be the most useful preparation. It was found also to be effective in control of experimental hemolytic streptococcal and staphylococcal infections of mice.

Clinically its low index of toxicity was confirmed. Because it is well tolerated over rather long periods, it seemed to be useful and promising for treatment of chronic bacterial infections which require long therapy. It penetrates the red blood cell more freely than do the other drugs of this group. For this reason it will doubtless be investigated in the treatment of diseases in which the parasites are intracellular, such as malaria.

In pneumococcal pneumonia it was quite effective. It was noted that it is easy to main-

1. Long, Perrin H.; Bliss, Eleanor A.; and Ott, Earl: Studies on Sulfadiazine. I. The Chemotherapy of Experimental Haemolytic Streptococcal, Pneumococcal and Staphylococcal Infections in Mice. Bull. Johns Hopk. Hosp., **69**:297 (Oct.) 1941.

2. Trevett, G. I.; Nelson, R. A.; and Long, P. H.: Ibid. 11. The Clinical Use of Sulfadiazine in the Therapy of Bacterial Infections Other Than Pneumonia. Ibid., p. 303.

3. Billings, F. T., Jr.; and Wood, W. Berry, Jr.: Ibid. 111. The Use of Sulfadiazine in the Treatment of Pneumococcal Pneumonia. Ibid., p. 314.

tain high blood concentrations of the drug. Its absorption during the first twenty-four hours after oral ingestion was slow, and it was suggested that it should be given intravenously to critically ill patients. It seemed to Billings and Wood to be the drug of choice for treatment of human pneumococcal pneumonia.

This group of drugs has become in a short time exceedingly widely employed, and a considerable number of injurious reactions have been attributed to them. Soon there will be only a small proportion of the general population which has not received one of them in treatment of some variety of infection. Specialists now note that they rarely see a patient who has not been treated with one of the group.

It behooves the physician to choose carefully the most specific one for his case, and the least toxic.

LIVER AND GOITER

Liver function in more than half a series of toxic goiters, according to Schmidt, Walsh and Chesky,[1] of Halstead, Kansas, was seriously damaged. Hippuric acid excretion was impaired and there were frequently abnormal glucose tolerance curves and subnormal prothrombin values. Liver function dropped notably, they observed, upon the second postoperative day after thyroidectomy.

It is not difficult to understand that a liver subjected to the drain of a continually increased metabolic rate, with increased use of reserve liver glycogen and other food materials stored in this organ, should show some signs of injury.

The Kansas investigators made repeated functional tests to discover whether improvement could be obtained by treatment. Their therapy consisted of a diet high in calories and vitamins and carbohydrates, with liver extract; and they administered insulin to increase the glycogen stores in the liver. It was noted that the patients improved clinically, the incidence of thyroid crisis decreased and the laboratory tests showed a more normal liver. They believe that the mortality of severely toxic goiter can be significantly reduced by the use of measures aimed at improving liver function.

1. Schmidt, C. R.; Walsh, W. S.; and Chesky, V. E.: Liver Insufficiency in Toxic Goiter and Its Treatment. Surg., Gyn & Obst., **73**:502 (Oct.) 1941.

TWENTY-FIVE YEARS AGO

From Journals of 1916

Panel Practice.[1]—Is the Association any use to the panel practitioner? * * * there are thousands of medical men in the country today who without any hesitation will say that * * * the British Medical Association is of no service whatever to the panel practitioners of the country. * * * We have had our practice * * * built up by years of toil and anxiety * * * converted into contract work under the National Insurance Act. * * * It has put the profession back fifty years.

Alabama News.[2]—Dr. Lloyd Noland, Birmingham, Superintendent of the Department of Health of the Tennessee Coal, Iron and Railroad Company, sailed from New York for Europe July 8. Dr. Noland will do medical research work and study in the war hospitals of France.

1. Correspondence. Brit. Med. Jour., p. 38, 1916.
2. State News. J.A.M.A., **67**:443, 1916.

Book Reviews

Diseases of the Nails. By V. Pardo-Castello, M.D., Assistant Professor of Dermatology and Syphilology, University of Havana, Havana, Cuba. 193 pages, illustrated. Springfield, Illinois: Charles C. Thomas, 1941.

The second edition of Pardo-Castello's "Diseases of the Nails" is an improvement over what was already the best monograph in the English language devoted to the nails and their dyscrasias.

This book is crowded with wonderful photographs. Physicians in the United States have not seen their like. This is made possible by the beautiful gloss paper used in building the book.

The rather hopeless attitude held by most physicians, even many skin specialists, toward diseases of the nails will disappear when this book is properly appreciated and employed. It cannot be recommended too highly.

Synopsis of Applied Pathological Chemistry. By Jerome E. Andes, M.S., Ph.D., M.D., F.A.C.P., Director of Department of Health and Medical Advisor, University of Arizona, Tucson, and A. G. Eaton, B.S., M.A., Ph.D., Assistant Professor of Physiology, Louisiana State University School of Medicine, New Orleans. 428 pages, illustrated. St. Louis: The C. V. Mosby Company, 1941. Cloth $4.00.

This book should find its way to the desks of all physicians who call on the laboratory for chemical studies. It is a suitable textbook for student technicians. Interns and graduate technicians should welcome it as an aid to an intelligent use of chemical procedure. The clinical laboratory will be fortified by this little volume.

It is divided into five principal parts which consider chemistry of the blood, of the urine and of the spinal fluid; functional tests of the kidney, liver and the endocrine glands; gastric analysis and basal metabolism. There are brief discussions of normal findings and of the changes brought about by disease. Each chapter is summarized in a convenient table in which important

variations are clearly emphasized. The methods given are standard procedures. Alternative methods are given for most analyses. Illustrations are included where necessary or when desirable, and a useful appendix gives directions for preparation of reagents and standard solutions.

The newer procedure for sulfonamide estimation is not included. Directions for blood amylase and for chemical examination of feces are omitted.

A Textbook of Pathology. Edited by E. T. Bell, M.D., Professor of Pathology in the University of Minnesota, Minneapolis, Minnesota. Fourth Edition. 931 pages, illustrated. Philadelphia: Lea & Febiger, 1941. Cloth $9.50.

This excellent textbook of pathology, now in its fourth edition, has been generally revised and modernized where necessary. The material is arranged in the classic manner with general pathology followed by special pathology. The section on tumors is unusually good for a book of this type. The author adopts a conservative attitude and accepts only those new ideas which have weathered censorship. The style of writing is particularly appealing. The author's statistical information on his own material gives the book a personalized value. The portion devoted to disease of the kidney simplifies a difficult subject.

The text is illustrated by photographs (mostly original) and by drawings. With few exceptions the illustrations are exceedingly good. Each division is supported by a bibliography in which special phases are indicated. The bibliography lists references to classic, but largely to modern discussions. The text is well indexed and it is easy to locate information on special subjects. The chapters on mycoses and on diseases of the liver and gallbladder are written by J. S. McCartney. The chapter on diseases of the heart is written by B. J. Clawson.

Without reserve this book can be recommended as a text for medical students and for students of pathology. It will prove a valuable reference book for all interested physicians.

Modern Trends in Ophthalmology. Edited by Frederick Ridley and Arnold Sorsby. 699 pages, illustrated. New York: Paul B. Hoeber, 1941. Cloth $10.00.

To bridge the large gap in clinical practice between the systematized knowledge enshrined in textbooks and the ferment found in the periodic literature, the editors of this volume have sought contributors from three continents, each a leader in his special field.

The book is divided into six parts: ophthalmology in relation to general medicine, diagnostic procedures, refraction and binocular vision, physiology of vision, newer conceptions in pathology, treatment and social aspects. There are fifty-seven articles written by fifty-five authors. Nine contributions are from the United States.

Of especial interest at present are the sections upon ophthalmology in aviation and upon chemical warfare in relation to ophthalmology. Exceptionally good are the articles upon "Retinal Detachment" by Prof. Weve, of Utrecht; "Surgical Treatment of Ptosis" by L. H. Savin, of London; and "Transplantation of the Cornea," by V. P. Filatov, of Russia.

This book is well written. It ably describes and evaluates new work that is being done in various large clinics, and is heartily to be commended.

Natural Resistance and Clinical Medicine. By David Perla, B.S., M.D., Late Pathologist and Bacteriologist, Montefiore Hospital, New York, and Jessie Marmorston, B.S., M.D., Assistant in Pathology, Cornell University Medical College. 1344 pages, illustrated. Boston: Little, Brown & Co., 1941. Cloth $10.00.

For many years the importance of natural resistance of the host has been appreciated by physicians. Differences in the natural resistance of patients have been commonly spoken of as "constitutional" difference. It has been evident that natural resistance is dependent upon a number of factors. Not only is it dependent upon genetic factors, but also upon nutrition, the functional capacity of the glands of internal secretion, the spleen, lymph nodes and macrophage system. In this book a large amount of information has been collected. The authors have analyzed the factors which they believe determine or modify natural resistance and susceptibility to disease. Each chapter is summarized and followed by a bibliography. This work should find a welcome reception in the library of every physician.

The Rockefeller Foundation. Annual Report, 1939. 507 pages, illustrated. New York: The Rockefeller Foundation.

This report covers the work of the Foundation in each of its five divisions, the International Health Division, the Natural Sciences, the Social Sciences, the Humanities and Work in China. This year there is a special fund for research to be done by deposed scholars. The resident reviews the work of the various divisions and gives a resume of the grants, which amount to nine and one-half million dollars this year. He reports that there is an effort on the part of many of the warring governments to "insulate important scientific work from the shock of war;" further that scientific leadership in many fields remains in Europe, though America has assumed certain of them. Mention is made of the invasion of the Anopheles gambiae into Brazil and also various other studies of the Foundation.

The treasurer's report gives a complete listing of the assets of the Foundation and the moneys expended during the year. These reports are interesting because they reflect the interest of the world in scientific development.

An Introduction to Medical Science. By William Boyd, M.D., M.R.C.P. (Lond.), Dipl. Psych., F.R.S. (Canada), Professor of Pathology and Bacteriology in the University of Toronto, Toronto. Second Edition. 358 pages, illustrated. Philadelphia: Lea & Febiger, 1941. Cloth $3.50.

The work has been written for the benefit of the nurse and the premedical student. It is an introduction to the study of disease and it presupposes no previous knowledge of the basic medical sciences.

Each disease is presented in a simple and easily understood language, and even though there is a discussion of pathology, physiology and bacteriology under each disease, complex details that may confuse a beginner are left out.

The first section deals with general principles of disease, the second with diseased organs, and the third with the prevention of disease.

In part I, there are discussions of the evolution of medical science, the nature and causes of disease, disturbance of the blood flow, inflammation, immunity and allergy, bacterial infections, bacteria, animal parasites and tumors.

In part II, there are chapters on diseases of the heart, lungs, liver, gallbladder, pancreas, upper and lower digestive tract, the urinary system, blood and lymphatic glands, the nervous system, and bones and joints.

The book, which contains 358 pages, is well illustrated.

A Primer for Diabetic Patients. By Russell M. Wilder, M.D., Ph.D., F.A.C.P., Professor and Chief of the Department of Medicine of the Mayo Foundation, University of Minnesota. Seventh Edition, 189 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1941. Cloth $1.75.

The author undertook the present edition of the popular "Primer for Diabetic Patients" in order to describe an improvement in the procedure of administering protamine zinc insulin. The method of administering in one syringe both protamine zinc insulin and regular insulin has given him excellent results and he advocates its use by diabetics.

The book contains 166 pages and is divided into nine small sections. There are sections upon the nature of diabetes, its specific management by diets and by insulin. There is a section upon the prevention and treatment of complications. A method for calculating food allowance according to height, weight, age, sex and activity is included. There is a section on substitutions for foods in the standard diets.

The Rockefeller Foundation International Health Division Annual Report, 1939. 230 pages, illustrated. New York: Rockefeller Foundation, 1940.

From this report it is seen that this division carried out activities in thirty-seven different countries in cooperation with the governments concerned. Investigations are being carried out in such diseases as yellow fever, rabies, tuberculosis, hookworm, schistosomiasis, mental hygiene and malaria. Over 28,000 persons in Brazil and Paraguay have been vaccinated against yellow fever, this being one of the main efforts of the group.

Magic in a Bottle. By Milton Silverman, Ph.D. 332 pages. New York: The Macmillan Company, 1941. Cloth $2.50.

The dramatization of medical discoveries makes medicine more interesting and makes more people interested in medicine. The people behind the discoveries are also discovered and they live in the pages of the book and in the mind of the reader. This book reads like a novel and tells of the men and the drugs, such as morphine, quinine, digitalis, cocaine, aspirin, the barbiturates, vitamins, hormones, sulfanilamide and the killing of germs by antiseptics. An absorbing book.

First Aid in Emergencies. By Eldridge L. Eliason, M.D., Sc.D., F.A.C.S., Professor of Surgery, University of Pennsylvania School of Medicine. Tenth Edition. 128 pages, illustrated. Philadelphia: J. B. Lippincott Company, 1941. Cloth $1.75.

A small practical book now in its tenth edition. One hundred and twenty-six illustrations are used to show the important points. The procedures outlined are all new and in most instances only the more generally accepted treatment is given, so that the reader will not become confused. At the top of each page is a title heading. It is a useful book.

A Textbook of Dietetics. By L. S. P. Davidson, B.A. (Cantab.), M.D. (Edin.), F.R.C.P. (Edin. and Lond.), F.R.S.E., Professor of Medicine and Clinical Medicine in the University of Edinburgh and Physician to the Royal Infirmary, Edinburgh, and Ian A. Anderson, M.B., Ch.B. (Aberd.) Clinical Tutor and Assistant in the Metabolic Wards, the Royal Infirmary, Aberdeen. 324 pages. New York: Paul B. Hoeber, Inc. Cloth $4.25.

A very interesting volume and a variation from the usual stereotyped book on diet. Of course the authors include the usual tables of food values and thirty-eight specimen diets to cover almost any conceivable requirement. These diets also are somewhat unusual in that they specify, for instance, that this diet is high in vitamin B, or that diet number 32 A is more expensive than diet number 32, both for obesity.

The main body of the book is really a course in dietetics, beginning with a general survey of the problem, nutrition at different income levels, a most important consideration, physiology of nutrition, then the human requirements of the various food constituents, protein, iron, vitamins, and so on. Next the composition and character of foods and beverages, and finally a very detailed discussion of the many individual diseases requiring special diets, including in the discussion other principles of treatment than diet, such as rest and relaxation. The pages devoted to the treatment of the many different forms of diarrhea and dyspepsia are most interesting and the simple clarity of description shows a thorough grasp of the subject.

This will be a valuable addition to any shelf of books on dietetics.

Southern Medical News

ALABAMA

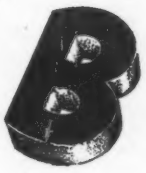
At the meeting of the Alabama State Association of Railroad and Industrial Surgeons, held recently in Birmingham, Dr. H. Earle Conwell, Birmingham, was elected President; Dr. John A. Martin, Montgomery, Vice-President; and Dr. C. B. Bray, Medical Director, American Cast Iron Pipe Company, Birmingham, Secretary-Treasurer.

Continued on page 50

WHICH SHALL IT BE?

A CHIP OFF THE

OR THE ENTIRE



The diagnosis of moderate vitamin B deficiency is still too involved with difficulty for practical purposes. The patient who complains of vague symptoms of undue fatigue, nervousness, headache, who has no desire for food, suffers from intestinal discomfort and constipation, may not be obtaining a sufficient quantity of any one or combination of factors that constitute the Vitamin B Complex. To use a single component of vitamin B may be but a part-way measure in reaching the therapeutic goal.

BREWERS' YEAST (HARRIS)

supplies, *in their natural relationship,* all the factors of the Vitamin B Complex: thiamine, riboflavin, nicotinic acid, pyridoxine, pantothenic acid, factor W and the six other factors described as components of the Vitamin B Complex. Brewers' Yeast (Harris) takes the conjecture out of vitamin B medication, as far as practicable. A trial supply gladly sent on request.

Brewers' Yeast (Harris) is available in palatable powder form and in 7½-grain blocks, in 6 and 13 ounce and 5 pound tins; blocks also supplied in bottles of 100. Vitamin B Complex Syrup in bottles of ¼, ½, and 1 pound. For specific medication, tablets of thiamine hydrochloride, riboflavin, nicotinic acid, ascorbic acid, in customary doses.

THE HARRIS LABORATORIES, INC., TUCKAHOE, NEW YORK

SINCE 1919

FIRST IN VITAMINS FOR MEDICAL USE

Continued from page 1216

The Birmingham Eye, Ear, Nose and Throat Society held its fall meeting recently and elected the following officers: Dr. A. M. Walker, Tuscaloosa, Dr. Herman W. Frank, Gadsden, and Dr. E. W. Rucker, Jr., Birmingham, on the Executive Board; and Dr. E. Gilbert Fisher, Birmingham, Secretary and Treasurer.

Dr. Philip Saul Bazar and Miss Helen Louise Bowers, both of Montgomery, were married recently.

DEATHS

Dr. Ollie Paxton Board, Birmingham, aged 58, was killed in an automobile accident October 15.

Dr. John Fred Huey, Birmingham, aged 75, died recently.

Dr. George Washington Davis, Bessemer, aged 44, died recently.

Chicago Eye, Ear, Nose & Throat College
Established 1897
231 W. Washington St., Chicago, Ill.
Practical postgraduate course in Ophthalmology and Otolaryngology.
Doctors admitted at any time for review and clinical observation.
OSCAR B. NUGENT, M.D., Director

Intensive Post-Graduate Course in Ophthalmology
The George Washington University School of Medicine
Washington, D. C.
FEBRUARY 2nd-4th, 1942, Inclusive
Guest Lecturers: Drs. Wm. L. Benedict, Edwin B. Dunphy, Harry S. Gradle, Walter I. Lillie, S. Hanford McKee, Avery DeH. Prangen, Algernon B. Reese, Meyer Wiener.
Resident Staff: Drs. Wm. Thornwall Davis, Ernest Sheppard, G. Victor Simpson, E. Leonard Goodman, Ronald A. Cox, Frank D. Costenbader, Horace E. Allen, Everett S. Caldemeyer, Sterling Bockoven, Walter Remejko, Colonel J. E. Ash, M.C. U.S.A.; Lt. Alfred Golden, M.C., U.S.A. Fee $35.00
AVIATION MEDICINE AND AVIATION OPHTHALMOLOGY
FEBRUARY 5th-7th, 1942, Inclusive
Guest Lecturers: Lt. Col. David N. W. Grant, M.C., U.S.A.; Lt. Col. Frederic H. Thorne, M.C., U.S.A.; Major John M. Hargreaves, M.C., U.S.A.; Major M. S. White, M.C., U.S.A.; Capt. J. C. Adams, M.C., U.S.N.; Capt. J. R. Poppen, M.C., U.S.N.; Comdr. Eric Liljencrantz, M.C., U.S.N.; Lt. Comdr. Leon Carson, M.C., U.S.N.; Dr. Hodges McKnight, American Air Lines; Col. A. D. Tuttle, M.D., United Air Lines; Dr. W. Randolph Lovelace II, Mayo Clinic; Dr. Ross A. McFarland, Harvard University. Fee $35.00
OCULAR SURGERY, PATHOLOGY AND ORTHOPTICS
(Practical Course)
JANUARY 26th-31st, 1942, Inclusive
Given by the Resident Staff. Limited to 30 participants. Practical work in ocular pathology, surgery and orthoptics. Fee $100.00
Orders taken for Proceedings of the courses, 1940, 1941 and 1942. For information apply to the Secretary, Miss Louise Wells, 927 17th St., N.W., Washington, D.C.

Dr. Lawrence Buckner Farish, Atmore, aged 62, died recently.

Dr. Luther LaFayette Wikle, Madison, aged 82, died recently of coronary heart disease and arteriosclerosis.

Dr. Francis G. DuBose, Selma, aged 68, died October 8 of heart disease.

ARKANSAS

Tenth Councilor District Medical Society has elected Dr. Thos. Douglas, Ozark, President; Dr. C. W. Hall, Greenwood, Vice-President; and Dr. A. B. Dickey, State Sanatorium, Secretary.

Dr. G. E. Cannon, Hope, has been doing special work at the Mayo Clinic, Rochester, Minnesota.

Dr. W. J. Nelson, formerly of Albuquerque, New Mexico, is now a member of the staff of the Holt-Krock Clinic, Fort Smith, as an eye, ear, nose and throat specialist.

Dr. T. E. Rhine, Thornton, has been elected Surgeon of the Fordyce American Legion post.

Dr. A. C. Shipp, Little Rock, was elected President of the Southern Tuberculosis Association at its recent meeting held at Asheville, North Carolina.

Dr. W. A. Ellis, Jr., Helena, has been doing special work at the Mayo Clinic, Rochester, Minnesota.

Dr. J. E. Little has accepted an appointment to the staff of the Arkansas Tuberculosis Sanatorium, State Sanatorium.

Dr. James K. Grace, Lieutenant, Medical Corps, U. S. Army, Belleville, has been ordered to active duty and assigned to Camp Bowen, Boise, Idaho.

Dr. Lynwood B. Jones, formerly of Monticello, is now Health Officer of Franklin County and is located at Ozark.

DEATHS

Dr. Hugh E. Longino, Texarkana, aged 47, died September 2.

Dr. Wylie R. Holloway, Center Ridge, aged 72, died September 11.

Dr. Benjamin Franklin Holliday, Parkdale, aged 81, died recently of cerebral hemorrhage and hypertension.

Dr. Bailis S. Stokes, Delight, aged 72, died recently of cerebral hemorrhage.

DISTRICT OF COLUMBIA

Dr. Clifton R. Wallace, formerly of Bayonne, New Jersey, has been appointed Medical Director of the National Bureau of Standards, U. S. Department of Commerce, Washington.

FLORIDA

Dr. Whitman Carlisle McConnell, St. Petersburg, announces that his son, Dr. Whitman Hurst McConnell, will be associated with him in the practice of neuropsychiatry.

Dr. Charles J. Collins, Orlando, announces that Dr. Warren A. Brooks will be associated with him in the practice of obstetrics and gynecology.

Dr. J. B. Parramore, Key West, took special work at the Children's Hospital in Saluda, North Carolina, during August.

Dr. S. G. Hollingsworth, Bradenton, has been reappointed a member of the State Board of Medical Examiners. Dr. Howard G. Holland, Leesburg, has been appointed on the Board to succeed Dr. B. A. Chapman, Jacksonville.

Dr. Arthur J. Logie, formerly of Jacksonville, has opened offices at 605 Lincoln Road, Miami Beach, for the practice of internal medicine with special attention to diseases of the chest.

Dr. Joseph Halton, Sarasota, has been doing postgraduate work at the Harvard Medical School and at the Massachusetts General Hospital.

A Health Center for Negroes will be operated by the Duval County Health Unit, Jacksonville, the lot and the building being supplied by money raised by the Negroes.

Dr. Abraham R. Hollender, Miami Beach, was elected President of the American Congress of Physical Therapy at the annual meeting held in Washington, D. C., in September, and Dr. Kenneth Phillips, Miami, was elected one of the Vice-Presidents.

Dr. William M. Howdeon, Miami, and Miss Arline Kaye, Miami Beach, were married recently.

Dr. T. H. Phipps, Jr., and Miss Dorothea Rights, both of Tampa, were married recently.

Dr. Paul G. Shell, Fort Lauderdale, and Miss Velna Loraine Fay, Howell, Michigan, were married recently.

Dr. Samuel DuBose Murray, Pensacola, and Mrs. Virginia White Whitaker, Atlanta, Georgia, were married recently.

Continued on page 52

Constipation in Infancy

Constipation in infancy probably commands the physician's attention more often than any other symptom that points to the need of readjusting a feeding formula.

Constipation is a common complaint and oftentimes is the real reason for a slow gain in weight, restless nights and a fretful, uncomfortable baby.

Infants fed on milk and water in proportions suitable for healthy babies of given age and weight with an amount of Mellin's Food to meet the carbohydrate requirement (*six to eight level tablespoons to the full day's mixture*) are seldom constipated.

Many physicians use Mellin's Food routinely in preparing bottle feedings, for they know from experience that regular stools of good consistency are characteristic of babies fed on milk properly modified with Mellin's Food. These physicians thus avoid much of the trouble associated with infant feeding.

Mellin's Food Co., Boston, Mass.

MELLIN'S FOOD: Produced by an infusion of Wheat Flour, Wheat Bran and Malted Barley admixed with Potassium Bicarbonate—consisting essentially of Maltose, Dextrins, Proteins and Mineral Salts.

Laxatives

not needed to relieve

Constipation

when the daily feedings are prepared from milk properly modified with

Mellin's Food

Samples sent to physicians upon request.

Continued from page 50

DEATHS

Dr. Emmet Bascom Koger, Miami, aged 67, died August 14.

Dr. James Whitaker West, Live Oak, aged 62, died recently.

Dr. Joseph R. Farrior, Chipley, aged 87, died August 2.

Dr. Charles Robert Gill, St. Augustine, aged 80, died in August.

Dr. Richard M. Genius, Winter Park, aged 77, died September 3 of cerebral hemorrhage.

Dr. Houston Boyd Hiatt, Oldsmar, aged 54, died August 28.

Dr. Frank P. Walker, Jacksonville, aged 86, died August 12 of myocarditis.

Dr. Benjamin F. Harrick, Madison, aged 55, died August 18.

GEORGIA

The Georgia Section of the Southeastern Surgical Congress held its annual clinical conference in Thomasville, September 17, under the presidency of Dr. Allan H. Bunce, Atlanta.

Dr. John M. McGehee, Cedartown, was recently elected to associate membership in the International College of Surgeons during the convention held in Mexico City, and Dr. Q. A. Mulkey, Millen, was elected to fellowship.

Dr. R. Bruce Logue announces the opening of offices in the Medical Arts Building, Atlanta, practice limited to internal medicine.

Dr. J. J. Folk, formerly with the Mulkey Hospital at Millen, has moved to Statesboro and is occupying the office of the late Dr. R. L. Cone.

DEATHS

Dr. John R. Smith, Douglas, aged 56, died August 17 of hypertension.

Dr. Ellis Grover Kirby, Bowdon, aged 56, died August 8 of myocarditis.

Dr. Rufus L. Cone, Statesboro, aged 62, died recently of cardiorenal vascular disease.

Dr. Jacob Alex Shields, LaFayette, aged 66, died recently.

KENTUCKY

The Boyd County Medical Society dedicated its September meeting to Dr. J. M. Salmon because he has withdrawn from active practice and resigned from the staff of the King's Daughters' Hospital, Ashland.

Dr. Leon L. Solomon and Dr. Oscar Bloch, Louisville, who have served on the Jewish Hospital staff since the founding of the institution in 1902, were honored at the recent regular hospital staff meeting.

Dr. Oscar E. Bloch, Jr., who has been in Baltimore, Maryland, will be engaged in the practice of internal medicine in Louisville.

Dr. Jack C. Haldeman, formerly Health Officer of Wasco County, Oregon, has been appointed to take charge of a new health unit in Christian County.

DEATHS

Dr. Elmer Jackson Hendren, Louisville, aged 29, was killed August 16 in an automobile accident.

Dr. Louise Southgate, Covington, aged 84, died August 15 of gastric hemorrhage.

Dr. John Harrison Arnold, Versailles, aged 71, died September 13.

Dr. DeWitt S. Floyd, Danville, aged 69, died recently of injuries received in a train accident.

Dr. Ambrose Henry Witherspoon, Lawrenceburg, aged 71, died August 14 of hypertensive heart disease.

Dr. William W. Gourley, Fulton, aged 85, died August 12 of cerebral hemorrhage.

LOUISIANA

Assumption Parish Medical Society has elected Dr. H. C. Dansereau, Labadieville, President; Dr. C. S. Roger, Napoleonville, Vice-President; and Dr. P. M. Payne, Napoleonville, Secretary-Treasurer.

Continued on page 54.

THE NEW YORK POLYCLINIC

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(The Pioneer Post-Graduate Medical Institution in America)

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A combined full-time course covering an academic year (9 months), consisting of attendance at clinics, witnessing operations, lectures, demonstration of cases and cadaver demonstrations; operative eye, ear, nose and throat on the cadaver; head and neck dissection (cadaver); clinical and cadaver demonstration in bronchoscopy, laryngeal surgery and facial palsy; refraction; ocular muscles; roentgenology; pathology, bacteriology and embryology; physiology; neuro-anatomy; anesthesia; physical therapy; allergy; examination of patients pre-operatively and follow-up post-operatively in the wards and clinics; work in out-patient department as assistant. SPECIAL ARRANGEMENTS CAN BE MADE FOR SHORTER COURSES.

Physical Therapy

Didactic lectures and active clinical application of all present-day methods of physical therapy in internal medicine, general and traumatic surgery, gynecology, urology, dermatology, neurology and pediatrics. Special demonstrations in minor electrosurgery, electrodiagnosis, fever therapy, hydrotherapy, including colonic therapy, light therapy.

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Kodak Minicolor Prints are enlargements direct from miniature Bantam (28 x 40-mm.) and 35-mm. (24 x 36-mm.) Kodachrome transparencies in standard 2 x 2-in. mounts. Two sizes are available: "2X"—about 2¼ x 3¼ in., with rounded corners, $.75 each (minimum charge per order, $1); "5X"—about 5⅜ x 7⅛ in., mounted in folder with 5 x 7½-in. opening, $3.50 each.

Kotavachrome Professional Prints are prints direct from all sizes of Kodachrome Professional Film transparencies except 45 x 107 mm., 6 x 13 cm., and 11 x 14 in. Enlargement can be as desired up to six times; unwanted areas can be eliminated by cropping during printing. Seven sizes are available, ranging from 8 x 10 in. to 30 x 40 in.

See your regular Kodak dealer for full-color descriptive leaflets and specific information . . . all prints must be ordered through him.

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Continued from page 52

Dr. William H. Perkins, former Head of the Department of Preventive Medicine, and Director of the Hutchinson Memorial Clinic, Tulane University School of Medicine, New Orleans, has assumed the duties of Dean of Jefferson Medical College, Philadelphia, Pennsylvania.

Dr. Thomas J. Healy, Thibodaux, has moved to Covington.

Dr. Robert D. Gillespie, for several years on the faculty of Johns Hopkins University, Baltimore, Maryland, a member of the American Psychiatric Association and one of England's leading psychiatrists, will deliver one of the Salmon lectures at New Orleans November 22. Dr. Gillespie will discuss the problems of psychiatry of the national defense as observed under actual war conditions.

Dr. Joseph C. Menendez, New Orleans, has been appointed Director of Civilian Defense in the Fourth Corps Area.

Dr. Julius L. Wilson, New Orleans, has been elected President of the Tuberculosis and Public Health Association of Louisiana.

The thirteenth annual meeting of the Central Association of Obstetricians and Gynecologists was held in New Orleans, October 2-4, under the presidency of Dr. Thomas B. Sellers, New Orleans.

Dr. William F. Guerriero, Instructor in Obstetrics and Gynecology, Louisiana State University School of Medicine, New Orleans, has been appointed full-time Director of Maternal and Child Health of the City Department of Health.

Dr. John Adriani, Instructor in Anesthesia, New York University College of Medicine, New York City, has resigned to become Director of Anesthesia at the Charity Hospital, New Orleans.

DEATHS

Dr. M. E. Connor, New Orleans, aged 62, died September 7.
Dr. Sol S. Kaufman, Crowley, aged 34, died September 3.

Continued on page 56

The Tulane University of Louisiana

SCHOOL OF MEDICINE

Review Courses in all branches of medicine annually—January through March.

COURSES leading to specialization in otolaryngology and in ophthalmology.

Special, short time, intensive courses in certain fields may be arranged.

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This improved Antigen is being produced under an exclusive arrangement with the Mount Sinai Hospital of Cleveland, in whose laboratory the method of preparation was developed. May be used for tests on spinal fluid. Antigen solution has excellent keeping qualities. Sensitive at low temperatures. Prices and full information on the Antigen and the apparatus for these tests sent on request.

LaMOTTE OUTFIT (MODEL 6-S) FOR KLINE SLIDE TEST FOR SYPHILIS (Portable)

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ATTEND THE SOUTHERN MEDICAL ASS'N MEETING

YOU are cordially invited to attend our exhibit at the Municipal Auditorium, St. Louis, Missouri,

NOVEMBER 10-13

M. Burneice Larson, Director

At the meeting of Southern Medical Association in St. Louis, this month, there will be problems of such world-shaking importance discussed that you will feel almost guilty about the time you must devote to problems of your own.

Yet . . . if you need an associate, or if you are planning to re-locate . . . these are matters you cannot shelve, despite their pygmy-like aspect in the presence of topics to which convention leaders will wish you to give your time and concentrated thought.

Perhaps at this point our service may be of value to you. Would it not help, to be able to review rapidly the credentials of specialists or recent graduates who are available for an appointment and who have the qualifications you demand in an associate? Will it not save you much inconvenience if WE arrange the time and place for an interview with the man you decide would be best for you?

Or—if re-location is the problem—we believe we could spare you many hours of preliminary correspondence by placing before you descriptions of openings conforming as nearly as possible with a basic outline which you give us.

We shall be glad to meet any of you whom we may assist. If you cannot attend the meeting, please write us about your problem, and we shall promptly mail you copies of the material which will be helpful to you in finding a satisfactory solution.

The Medical Bureau

Palmolive Building Chicago

Our booth at the meeting of Southern Medical Association in St. Louis, November 10 to 13, will be Number 49.

Continued from page 54

Dr. Joseph Rigney D'Aunoy, New Orleans, aged 51, died September 17.

Dr. Edward O. Trahan, Baton Rouge, aged 64, died August 29.

Dr. Guy Allen Shaw, Loreauville, aged 72, died recently of coronary sclerosis.

MARYLAND

Johns Hopkins University School of Medicine, Baltimore, has received $9,300 for immunologic studies in infantile paralysis as a grant from the National Foundation for Infantile Paralysis. The Crippled Children's Hospital, Baltimore, received $400 for spinal curvature studies.

The South Baltimore General Hospital was recently presented a new medical library by the Soroptimist Club of Baltimore.

Samuel R. M. Reynolds, Ph.D., Associate Professor of Physiology, Long Island College of Medicine, Brooklyn, New York, has been appointed Research Associate of the Carnegie Institute of Washington, in the Department of Embryology, Baltimore.

Dr. Alfred Blalock, Professor of Surgery, Johns Hopkins University School of Medicine, Baltimore, delivered the Gordon Wilson Lecture on "Peripheral Circulatory Failure" at the fifty-eighth annual meeting of the American Clinical and Climatological Association held recently at Skytop, Pennsylvania.

Deaths

Dr. Frederick Norman Nichols, Denton, aged 62, died August 22 of multiple myeloma.

Dr. Jack Bertolette Zerbee, Easton, aged 45, died recently of cerebral hemorrhage.

Dr. Paul Jones, Snow Hill, aged 88, died recently of myocarditis.

MISSISSIPPI

New full-time health departments were recently started in Rankin and Kemper Counties, with headquarters in Brandon and DeKalb, respectively. Dr. William C. Beaver, Jackson, will be in charge of Rankin County and Dr. John R. Priest, Jr., Houston, of Kemper County.

Dr. Rhea L. Wyatt, Tupelo, is Health Officer of the Clarke-Wayne Counties Health Unit with offices in Shubuta.

Dr. John G. Egger, Drew, is in charge of the Simpson County Health Unit, and Dr. Jack G. Young, Greenwood, of the Marshall County Health Unit.

Dr. Ernest J. Holder, Greenville, formerly Director of the Washington County Health Department, has been appointed Director of the Tricounty Health District (composed of Lawrence, Jefferson Davis and Covington Counties), succeeding Dr. John W. Dugger, Jackson.

Deaths

Dr. Winfield Wardlow Cox, Gulfport, aged 60, died September 7.

Dr. John P. Conn, Monticello, aged 71, died August 6.

Dr. Ellison Holmes Williamson, Soso, aged 60, died recently of coronary thrombosis.

MISSOURI

Dr. Clyde P. Dyer, St. Louis, Editor of the St. Louis County Society Bulletin, was elected President of the Mississippi Valley Medical Editors' Association at the organization's first annual meeting, held in conjunction with the annual convention of the Mississippi Valley Medical Society at Cedar Rapids, Iowa. Dr. Julius Jensen, St. Louis, Associate Professor of Medicine, Washington University School of Medicine, was elected to the Executive Committee.

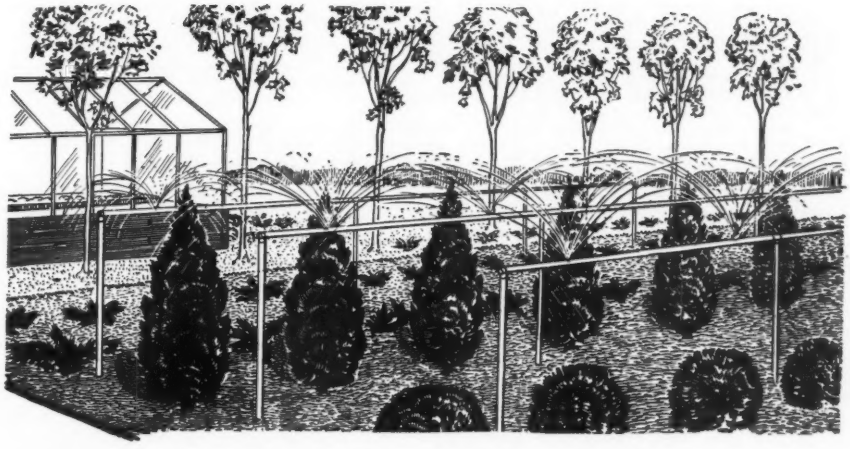
Dr. Frank M. Grogan, since 1934 Superintendent of City Sanitarium, St. Louis, is now Hospital Commissioner of St. Louis, succeeding Dr. Ralph L. Thompson, resigned.

Dr. Walter Baumgarten, St. Louis, at a meeting of the Council of the State Society in July was elected Secretary of the Missouri State Medical Association. He is also Editor of the Missouri State Medical Journal.

Dr. E. W. Cline, Platte City, is Health Officer of the Platte County Unit of the Division of Local Health Administration of the State Board of Health. This is the twelfth unit in the State and the fourth to be established in 1941.

The staff of the Ellis Fischel State Cancer Hospital, Columbia, will hold regular monthly Clinical Pathological Conferences on the third Tuesday evening of each month through May, 1942,

Continued on page 58



To Aid Nature, Man Ingeniously Maintains a "Water Balance" in a Thirsty Soil

"BOUND WATER"

Relieves the "Thirsty" Bowel

"The major difference between a normal stool and a constipated stool is that the latter is deficient in water."*

The prime objective, therefore, in the corrective treatment of bowel stasis is obvious—to supply that agent to the dehydrated, constipated stool which will *hold water* and prevent the recurrence of dry, hard, packed, inspissated masses in the bowel.

The agent that has been used to accomplish this purpose is the hydrophilic, water-binding hemicellulose

MUCILOSE

Mucilose helps to restore normal consistency, normal bulk, normal peristalsis, without vitamin absorption or tendency toward leakage.

*Oelgoetz, A. W., Oelgoetz, P. A. and Wittekind, J., Studies in Bowel Drainage, Am. J. Diges. Dis. & Nutrition, 3:549 (October) 1936.

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Continued from page 56

at the hospital. All members of the medical and nursing professions and students are invited to attend.

DEATHS

Dr. John M. Brown, Maysville, aged 83, died recently of cerebral hemorrhage.

Dr. John T. White, Gainesville, aged 71, died recently of an abscess of the lungs.

NORTH CAROLINA

Sixth District Medical Society has elected Dr. Berne S. Caviness, Raleigh, President, and Dr. John Hunter, Cary, Vice-President.

Ninth District Medical Society has elected Dr. S. A. Rhyne, Statesville, President; Dr. Douglas Hamer, Jr., Lenoir, Vice-President; and Dr. J. Sam Holbrook, Statesville, Secretary-Treasurer, reelected.

North Carolina Eye, Ear, Nose and Throat Society, at its seventh annual meeting held in Goldsboro recently, elected Dr. H. C. Wolfe, Greensboro, President; Dr. J. H. Fitzgerald, Smithfield, Vice-President; and Dr. V. F. Couch, Winston-Salem, Secretary-Treasurer, reelected.

Dr. C. W. Herndon, Charlotte, is now at Heredity Clinic, University of Michigan, Ann Arbor, Michigan.

North Carolina State Board of Health recently sponsored a meeting in Rockingham to consider health conditions in eight counties which will be in the area of maneuvers of the First Army during October and November.

Dr. Walter Reece Berryhill, Acting Dean of the University of North Carolina School of Medicine, Chapel Hill, has been appointed Dean since the resignation in 1940 of Dr. William deB. MacNider.

Dr. Benjamin M. Drake, Kenansville, has resigned as Health Officer of Duplin County to accept a position in the Moore County Health Department.

Dr. Milner C. Maddrey, Health Officer of Roanoke Rapids, resigned recently and was succeeded by Dr. Robert M. Bardin, Roanoke Rapids.

Dr. William L. Venning, Jr., Durham, and Dr. Laura E. Ross, Charlotte, were married recently.

DEATHS

Dr. John Webster McGehee, Reidsville, died September 23.

Dr. W. Myers Hunter, Charlotte, aged 58, died August 4.

Dr. Edmund Tayloe Gordon, Goldsboro, aged 58, died August 30.

OKLAHOMA

Paul W. Smith, Ph.D., formerly Assistant Professor of Physiology at the University of Tennessee College of Medicine, Memphis, has been appointed Instructor in Pharmacology at the University of Oklahoma School of Medicine, Oklahoma City.

DEATHS

Dr. Elmer E. Church, Enid, aged 78, died August 4 of coronary occlusion.

Dr. Joel Reading Holliday, Oklahoma City, aged 62, died August 7.

Dr. James Ward Messersmith, Forgan, aged 69, died recently of heart disease.

SOUTH CAROLINA

The constuction of the Simon Baruch Memorial Auditorium and the adjacent wing to the Medical College of the State of South Carolina, Charleston, is nearing completion. It is financed through a gift by Bernard M. Baruch and is a memorial to his father.

Medical College of the State of South Carolina, Charleston, will hold its usual Founders' Day Exercises on November 6 as announced by the Dean, Dr. Robert Wilson. Dr. R. A. Ross, Associate Professor of Obstetrics and Gynecology at Duke University, Durham, North Carolina, will deliver the annual address.

Dr. Jennings K. Owens, having recently graduated from the

Continued on page 60

Decholin
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STIMULANT THERAPY
in CHRONIC CHOLECYSTITIS

THE USE of bile salts in chronic cholecystitis is based upon the choleretic and cholagogue influence of the agents employed. This type of stimulant therapy, as distinguished from the replacement therapy called for in biliary fistula, is effectively established with ***Decholin***—chemically pure dehydrocholic (triketocholanic) acid.

Directly stimulating the liver cells, ***Decholin*** increases bile secretion by as much as 200 per cent. Drainage is thus encouraged in the intra- and extrahepatic bile ducts, leading to removal of inspissated bile and nidi of infection. In combination with appropriate dietary measures, ***Decholin*** has produced roentgenologically demonstrable improvement in chronic cholecystitis. It finds valuable application as well in noncalculous cholangitis, toxic hepatitis, biliary engorgement, and preoperative enhancement of liver function. ***Decholin*** is contraindicated in total obstruction of the hepatic or common bile duct.

Physicians are invited to request the third edition of "Biliary Tract Disturbances," which discusses in detail the wide therapeutic applicability of *Decholin*.

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IT'S "Smoothage" WITH Metamucil-2

The evolution of constipation therapy through the stages of cathartics, salines, "roughage" and oils to the present physiologic treatment with "Smoothage" represents the constant aim toward correction rather than palliation.

Metamucil-2

has achieved this aim because it provides Smoothage and nothing else—no irritant chemical stimulants; no dehydrating salines; no harsh roughage; no leaky or vitamin-depleting oils.

Metamucil-2

is a highly refined product. Its mucilloid softens the fecal residue and protects the gastrointestinal mucosa. The bland mucilaginous gel afforded by its combination with ingested water encourages physiologic evacuation.

Metamucil-2 **(GREEN LABEL)**

is a palatable and quick-mixing fine powder, supplied in 1 lb., 8 oz. and 4 oz. containers.

Dosage: One rounded teaspoonful in water, followed by an additional glass of water.

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CHICAGO

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Increasing Demand for Laboratory Technicians

The ever increasing demand for Gradwohl graduates is the best recommendation for the thoroughness of our course.

Recently we have added two additional months, making the course now one year. In addition, students must serve six months' internship before receiving diplomas. We have added a highly-trained biological chemist to our teaching staff.

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Director

Continued from page 58

Medical College of the State of South Carolina, is now practicing medicine in his home town, Bennettsville.

Dr. William G. Morehouse, Spartanburg, is doing special study in psychiatry at the State Hospital in Columbia.

Sixty medical officers from Camp Croft are now associate membes of the Spartanburg County Medical Society.

Dr. Vernon L. Bauer, who recently completed his internship at the Columbia Hospital, has joined the staff of the Johnson Memorial Hospital at Hemingway.

Dr. S. Glenn Love, Rock Hill, has announced his retirement from active practice.

Dr. Clarence E. Owens, Columbia, and Miss Marion E. Glager, St. Augustine, Florida, were married recently.

Dr. James G. Jeanes, Clinton, and Miss B. Joann Sawicz, Palm Beach, Florida, were married recently.

Dr. Lane Elwood Mays, Fair Play and Greenville, and Miss Nancy Margaret Keese, Westminster, were married recently.

Deaths

Dr. O. DuBose, Andrews, aged 59, died September 9.

Dr. Manly Coke Smith, Simpsonville, aged 54, died recently.

Dr. Holland M. Carter, Smoaks, aged 64, died recently.

Dr. G. F. Moseley, Gross Keys, aged 84, died recently.

TENNESSEE

Dr. Jere L. Crook, Jackson, local surgeon of the Illinois Central, was elected President of the American Association of Railway Surgeons at the recent annual meeting.

Dr. Alex B. Shipley, Elizabethton, Health Officer of the Carter-Unicoi-Johnson Counties Health Unit, is now Director of a regional health office for East Tennessee. Dr. Robert E. Rock, Opelika, Alabama, succeeds Dr. Shipley as Health Officer, and is located at Elizabethton.

Dr. William H. Walcott, Milan, is in charge of a new Health Unit in Carroll County with headquarters at Huntington.

Dr. Franklin H. Alley, formerly Assistant Superintendent of

Continued on page 62

AT BOOTH 137...

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. See and Try the Shoe that's *Revolutionizing* FOOT CORRECTION

Are you "up to date" on orthopedic footwear? Not if you still rely on old-fashioned standardized shoes made for "average" types of feet! Plastic-fit CONFORMALS now provide truly **individualized correction.** Be sure to enjoy a Free Trial Fitting at the St. Louis Convention.

CONFORMAL *Personalized* **SHOES**
FOR MEN and WOMEN

ACCEPTED FOR ADVERTISING BY THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

THERE IS NO CURE FOR PARKINSON'S DISEASE, BUT RABELLON BRINGS SYMPTOMATIC RELIEF

OUT OF THE MAZE and welter of quasi-magic, pseudo-scientific and scientific background surrounding the treatment of this disease, there has emerged a form of therapy which, although it does not constitute a specific remedy, brings relief which is often prompt and dramatic to many of those who suffer from post-encephalitic Parkinson's disease and paralysis agitans.

'Rabellon' Tablets are a scientifically-controlled combination of hyoscyamine hydrobromide, atropine sulfate and scopolamine hydrobromide. They are standardized for alkaloidal content, thus facilitating dosage and estimation of effect with a higher degree of precision.

Following the use of this preparation, striking improvement is frequently noted in the distressing dysphagia, sialorrhea, and muscle pains. Cogwheel rigidity, hyperactive reflexes, tremors, gait and facies are also benefited and oculogyric crisis may often be alleviated. Proper use of 'Rabellon' assures a more hopeful future for the Parkinsonian patient.

'Rabellon' Tablets are supplied in 0.5-mg. (total alkaloids) tablets in bottles of 100 and 1000. The tablets are quarter-sected to permit administration of small doses for initial treatment.

Rabellon • *Sharp & Dohme*

Know How You Stand Compared with Last Year?

. . . You'd know **exactly**, at a glance, if you were using the DAILY LOG. It's the SIMPLIFIED, thoroughly ORGANIZED system of office bookkeeping. Includes in one neat volume every essential business record of your practice. Important non-financial ones, too. It's a treasure at income tax time!

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WRITE—for illustrated booklet "The Adventures of Dr. Young in the Field of Bookkeeping."

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ALKALINE WATER

SPARKLING • NOT A LAXATIVE

Complete literature on request

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Continued from page 60

the Davidson County Tuberculosis Hospital, Nashville, is now Director of the Oakville Sanatorium, Oakville, a Shelby County institution. Dr. Alley succeeds Dr. James A. Price, who recently retired.

Dr. David A. Davis, Springfield, and Miss Alice Rebecca Roper, Winter Garden, Florida, were married recently.

Deaths

Dr. August Hermsmeier Wittenborg, Memphis, aged 57, died August 21 of myocardial infarction.

Dr. Jesse Albert Moore, Sharon, aged 66, died August 15 of coronary thrombosis.

Dr. Stephen Napoleon Bonaparte Penland, Madisonville, aged 87, died August 31 of heart disease.

TEXAS

American Association for the Advancement of Science will hold its annual meeting in Dallas, December 29, 1941-January 3, 1942. The attendance of this meeting over the past four years has been well over five thousand. Among the outstanding features of the part of the program devoted to the medical sciences will be a symposium of nineteen papers upon relapsing fever.

Dr. John F. Hines has constructed a new clinic hospital building at Eden.

Dr. Joseph M. Hill, Dallas, and his associates at Baylor Hospital were recently honored at a dinner at the Baker Hotel for their development of the adtevac process. The dinner was given by the Dallas medical profession and the industrialists and laymen of the city. Dr. A. I. Folson, Chairman of a committee in charge of the dinner and its arrangements, was toastmaster. The guest speaker was Dr. Charles Gordon Heyd, New York City, past President of the American Medical Association, who paid special tribute to Dr. Hill and his associates for their scientific contribution. Dr. George T. Caldwell, Dallas, explained the adtevac process in which the plasma of grouped blood is separated, filtered, purified, frozen and crystallized so that it may be stored in air-tight containers until it is ready for transfusion.

Dr. Hardy Kemp, formerly of Dallas, and who recently was Dean of the University of Vermont College of Medicine, is now Dean of the Ohio State University School of Medicine.

Continued on page 64

Dear Doctor:

You are cordially invited to visit the Horlick's Malted Milk booth at the Southern Medical Meeting.

Horlick's Malted Milk has been fortified with vitamins A, B1, D and G and we would like the opportunity to discuss this new form of our product.

We will be in booth Number 27 and are looking forward to a pleasant visit with you.

HORLICK'S MALTED MILK CORPORATION
Racine, Wisconsin

PROVEN DEPENDABILITY

Oral administration of the estrogenic substance for the relief of menopausal symptoms has developed an imposing clinical background. For dependability and economy choose —

ESTROMONE TABLETS
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furnishing highly purified and concentrated natural estrogens. Always under constant control for biologic activity. Standardized in terms of the International Unit.

ESTROMONE TABLETS are supplied in three potencies: 1,000, 2,000 and 4,000 International Units in sanitape packets in boxes of 20 and 100.

Estromone in Oil also available in various dosage forms for hypodermic administration.

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For this patient...

PRESENT COMPLAINT: Numbness; tingling and cold extremities; Claudications; Leg Ulcers

ONSET & COURSE

a Burdick Rhythmic Constrictor

Disorders of the peripheral circulation with a diminished flow of blood through the extremities are amenable to treatment with a

Burdick RHYTHMIC CONSTRICTOR

Smooth and silent in action, inexpensive to operate, and clinically effective, the Burdick Rhythmic Constrictor is of distinct merit in—

Peripheral vascular sclerosis
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Selective Dual Timing makes it possible for you to individualize treatments in each case.

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Continued from page 62

Dr. K. B. Urban, Crystal City, has been doing postgraduate work in pediatrics at Vanderbilt University, Nashville, Tennessee, and is now located in Jacksonville.

Dr. C. C. Pate, Paducah, has been taking postgraduate work at the Mayo Clinic in Rochester, Minnesota.

Dr. J. B. Rushing, El Campo, has been doing postgraduate work at the Chicago Tumor Institute.

Dr. I. P. Barrett, Fort Worth, has been doing postgraduate work in public health at the University of Michigan.

Dr. Edith Bonnet, San Antonio, has been appointed Physician for the San Antonio public school system, succeeding Dr. William H. Hargis, Jr., who has been called to military service.

Dr. George R. Herm-nn, Galveston, recently addressed the Sociedad de Cardiologia Mexicana in Mexico City.

Deaths

Dr. William Thomas Castleberry, Nacogdoches, aged 76, died recently.

Dr. Albert L. Taylor, Brownwood, aged 75, died recently.

Dr. Ira Eustace Harder, Dallas, aged 45, died August 18.

Dr. Jethro D. Davidson, Teague, aged 54, died recently of brain tumor.

Dr. Charles A. Wilson, Houston, aged 85, died in August.

Dr. James Weaver Conley, Quanah, aged 57, died August 18 of bilateral urethral calculi.

VIRGINIA

The United States Public Health Service has made a grant of $3,000.00 for the Saint Philip School of Nursing and $12,350.00 for the College School of Nursing of the Medical College of Virginia.

Dr. C. M. Caravati, Richmond, after six months at the Johns Hopkins Clinic, has re-entered practice, limiting his work to gastroenterology.

Dr. Hawes Campbell, Jr., formerly of Hanover, is now located at Gary, West Virginia.

Dr. D. F. Love has moved from Harman to New Market.

Dr. J. Shelton Horsley, Richmond, was recently honored at a banquet at the meeting of the American Association for the Study of Neoplastic Diseases in Washington.

Dr. C. E. Holderby, formerly of Williamsburg, now has offices in the Masonic Temple at Newport News.

Dr. Thornton Kell has moved from Bluefield to Grundy.

Dr. William C. Moomaw, formerly of Port Chester, New York, is now located at Bedford in the practice of eye, ear, nose and throat.

Dr. Edwin F. Gouldman, Colonial Beach, is now Assistant Resident in Obstetrics and Gynecology in Flower and Fifth Avenue Hospitals, New York City.

Dr. Charles W. Robertson, recently of Massachusetts, has taken over the practice of the late Dr. L. A. Law at Alberta.

A new department of psychiatry has been opened at the Medi-

Continued on page 66

Classified Advertisements

RATES for insertion in the Classified Column are as follows: $2.00 minimum, which includes the first 50 words; for each word in addition to the original 50 words, the charge is 3c.

POSITION WANTED—Position as office assistant and nurse desired by woman aged 27, single, now employed. A-1 references. Two years' experience as assistant in up-to-date doctors' office and clinic in city of 2,500 population. Also do general office work, typing. State salary and chances of advancement. Address inquiries to Dept. G-10, care Southern Medical Journal, Birmingham, Alabama.

EDITING—Preparation of papers and reports, indexing, abstracting, bibliographies and similar services to physicians. Address inquiries to Elizabeth M. McFetridge, M.A., 4810 St. Charles Avenue, New Orleans, Louisiana.

It is difficult to plan nutritionally-good diets when a large proportion of foods eaten have had most of the minerals and vitamins removed by refining.

HALF-HEALTH,

HALF-STRENGTH,

HALF-HAPPINESS

. . . can result from diets which are not quite good enough.[1] You know well, doctor, the insidious character of a sub-clinical vitamin and mineral deficiency. No pathology, no objective symptoms, no specific complaint — yet the patient feels below par, lacks vitality, and is often depressed. You take a rational step towards meeting this nutritional challenge with . . .

VI-SYNERAL *The Original Vitamin-Mineral Concentrate*

(FUNK-DUBIN)

Contains VITAMINS A, B_1, B_2(G), C, D, E and other B Complex factors, together with essential MINERALS: calcium, phosphorus, iron, copper, iodine, manganese, magnesium and zinc in Funk-Dubin balances.

There are 5 DISTINCT VI-SYNERAL* PRODUCTS supplying specially balanced vitamin-mineral potencies for FIVE DIFFERENT AGE GROUPS: 1. INFANTS AND CHILDREN 2. ADOLESCENTS 3. ADULTS 4. EXPECTANT AND NURSING MOTHERS AND 5. SPECIAL GROUP (MIDDLE-AGED AND AGED PATIENTS).

NOTE, DOCTOR . . . when treating specific ailments, prescribe VI-SYNERAL as an aid in establishing an optimal vitamin-mineral regimen to help revitalize the patient's system and encourage a faster and more satisfactory response to your specific therapy.

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[1] Report of National Nutrition Conference for Defense, Washington, D. C., 1941

U. S. VITAMIN CORPORATION

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Continued from page 64

cal College of Virginia Hospital, Richmond, with a capacity of thirty-eight beds.

Dr. Theodore Baldsin McCord, Fairfax, and Miss Kathryn Elizabeth Funk were married recently.

DEATHS

Dr. Samuel Meredith Wilson, Lynchburg, aged 56, died September 14.

Dr. William Witmer Kerns, Bloxom, aged 70, died August 28.

Dr. Boliver Buchanan McCutcheon, Clifton Forge, aged 70, died September 9.

Dr. Wiley Aven Preston, Abingdon, aged 37, died August 27.

Dr. Thomas Franklin Dodd, Alexandria, aged 62, died August 14.

WEST VIRGINIA

Dr. F. A. Irmen, formerly with the State Hospital at Weston, is now a member of the staff of the Huntington State Hospital, Huntington.

Dr. O. L. Huffman has moved from Sugar Grove to Arvonia, Virginia.

Dr. James L. Wade has returned to Parkersburg from Portsmouth, Virginia, where he was in active Naval duty.

Dr. J. C. Ford, Huntington, is with the U. S. Army at Hattiesburg, Mississippi.

Dr. H. H. Ritter, Montgomery, is taking a fellowship in pathology at Johns Hopkins University, Baltimore, Maryland.

Dr. J. S. Hayman, Huntington, has been doing postgraduate work in Chicago.

Dr. R. N. Cooley, Coalwood, is now located at Johns Hopkins Hospital, Baltimore.

Dr. Henry R. Dupuy, formerly of Oakland, Maryland, has been appointed Health Officer of Berkeley County.

Dr. William A. Bevacqua, Parkersburg, has resigned as Health Officer of Wood County to enter private practice.

DEATHS

Dr. John Woodrow Barnhart, Clendenin, aged 28, died August 18 of cerebral hemorrhage.

OINTMENT SPECIALISTS SINCE 1900

Again the leaders in the field of Ophthalmic Ointments bring you two new products. Where indicated we invite you to try—

SULFANILAMIDE OINTMENT 5% List No. 64

and

SULFATHIAZOLE OINTMENT 5% List No. 65

We are carrying these "SULFA" products as a regular stock item and can give you immediate delivery. Also, while we list these products in 5% strength our private formulae department will supply you in any strength desired in minimum quantities of three dozen. A card will bring you our list of 65 formulae.

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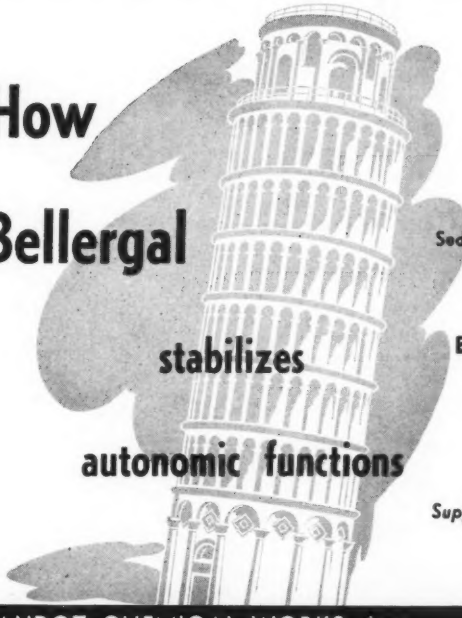

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Balance DOES IT!

Sedation of the entire neuro vegetative system

BELLERGAL
- GYNERGEN — Sympathetic Depressant
- BELLAFOLINE — Vagus Sedative
- PHENOBARBITAL — Central Sedative

Average Dose: 3 to 4 tablets daily.
Supplied: Bottles of 25, 100, 250 and 1000 tablets.

Samples and Literature on Request.

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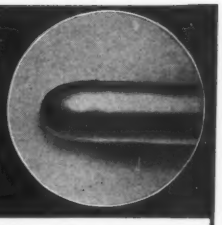

FOR safety and reliability use composite Radon seeds in your cases requiring interstitial radiation. The Composite Radon Seed is the only type of metal Radon Seed having smooth, round, non-cutting ends. In this type of seed, illustrated here highly magnified, Radon is under gas-tight, leak-proof seal. Composite Platinum (or Gold) Radon Seeds and loading-slot instruments for their implantation are available to you exclusively through us. Inquire and order by mail, or preferably by telegraph, reversing charges.

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BRIEF HISTORICAL NOTES ON MEAD'S CEREAL AND PABLUM

HAND in hand with pediatric progress, the introduction of Mead's Cereal in 1930 marked a new concept in the function of cereals in the child's dietary. For 150 years before that, since the days of "pap" and "panada," there had been no noteworthy improvement in the nutritive quality of cereals for infant feeding. Cereals were fed principally for their carbohydrate content.

The formula of Mead's Cereal was designed to supplement the baby's diet in minerals and vitamins, especially iron and B_1. How well it has succeeded in these functions may be seen from two examples:

(1) As little as one-sixth ounce of Mead's Cereal supplies over half of the iron and more than one-fifth of the vitamin B_1 minimum requirements of the 3-months-old bottle-fed baby. (2) One-half ounce of Mead's Cereal furnishes all of the iron and two-thirds of the vitamin B_1 minimum requirements of the 6-months-old breast-fed baby.

That the medical profession has recognized the importance of this contribution is indicated by the fact that cereal is now included in the baby's diet as early as the third or fourth month instead of at the sixth to twelfth month as was the custom only a decade or two ago.

In 1933 Mead Johnson & Company went a step further, improving the Mead's Cereal mixture by a special process of cooking, which rendered it easily tolerated by the infant and at the same time did away with the need for prolonged cereal cooking in the home. The result is Pablum, an original product which offers all of the nutritional qualities of Mead's Cereal, plus the convenience of thorough scientific cooking.

During the last ten years, these products have been used in a great deal of clinical investigation on various aspects of nutrition, which have been reported in the scientific literature.

Many physicians recognize the pioneer efforts on the part of Mead Johnson & Company by specifying Mead's Cereal and PABLUM.

Pablum is a palatable mixed cereal food, vitamin and mineral enriched, composed of wheatmeal (farina), oatmeal, cornmeal, wheat embryo, beef bone, brewers' yeast, alfalfa leaf, sodium chloride, and reduced iron.

Are the Neuritic Symptoms of Pregnancy *due to a deficiency of vitamin B_1 (thiamine)?*

SUCH common neuritic symptoms of pregnancy as pains in arms and legs, muscle weakness, and (less frequent but more serious) paralysis of the extremities may result from a shortage of antineuritic vitamins, recent investigations appear to show. Although neuronitis of pregnancy has long been considered a toxemia, no toxins have ever been identified.

Clinical observations of Strauss and McDonald lead to the conclusion that the condition is a dietary deficiency disorder similar to beriberi, caused by lack of vitamin B_1. They report recovery in their cases receiving this therapy, including dried brewers' yeast.

Hyperemesis as Cause of Avitaminosis

Wechsler observes that all cases of polyneuritis of pregnancy recorded in the literature were preceded by long periods of severe vomiting. "It would seem," he adds, "that because of actual starvation these patients suffered from avitaminosis and consequent neuritis," a view likewise held by Hirst, Luikart, and Gustafson. Plass and Mengert observe that the practice of giving high carbohydrate feedings for hyperemesis gravidarum is still more likely to cause avitaminosis.

Dried brewers' yeast, as it is far richer than any other food in vitamin B_1 (thiamine), is being used with benefit both in the prevention and treatment of polyneuritic symptoms of pregnancy. Lewy found that additions of yeast to the diet reduced electric irritability of the peripheral nerves and brought clinical improvement. Vorhaus states that he and his associates, after administering large amounts of vitamin B_1 (thiamine) to 250 patients having various types of neuritis, including that of pregnancy, observed in about 90% of cases "varying degrees of improvement, i.e., from partial relief of pain to complete disappearanee of all symptoms."

Need for Vitamin B_1 (thiamine) in Lactation

Evans and Burr, Hartwell, Sure and co-workers, and Macy *et al* are among numerous authorities who find that the nursing mother also needs a supplement of vitamin B_1 (thiamine) from 3 to 5 times the normal requirement. It is accepted that during pregnancy and lactation the requirement for vitamin G (riboflavin) is increased.

Consisting of nonviable yeast, Mead's Brewers Yeast Tablets offer not less than 50 International vitamin B_1 (thiamine) units and 50 Sherman vitamin G (riboflavin) units per gram (20 International units of vitamin B_1 and 20 Sherman units of vitamin G per tablet).

Supplied in bottles of 250 and 1,000 tablets, also in 6-oz. bottles of powder.

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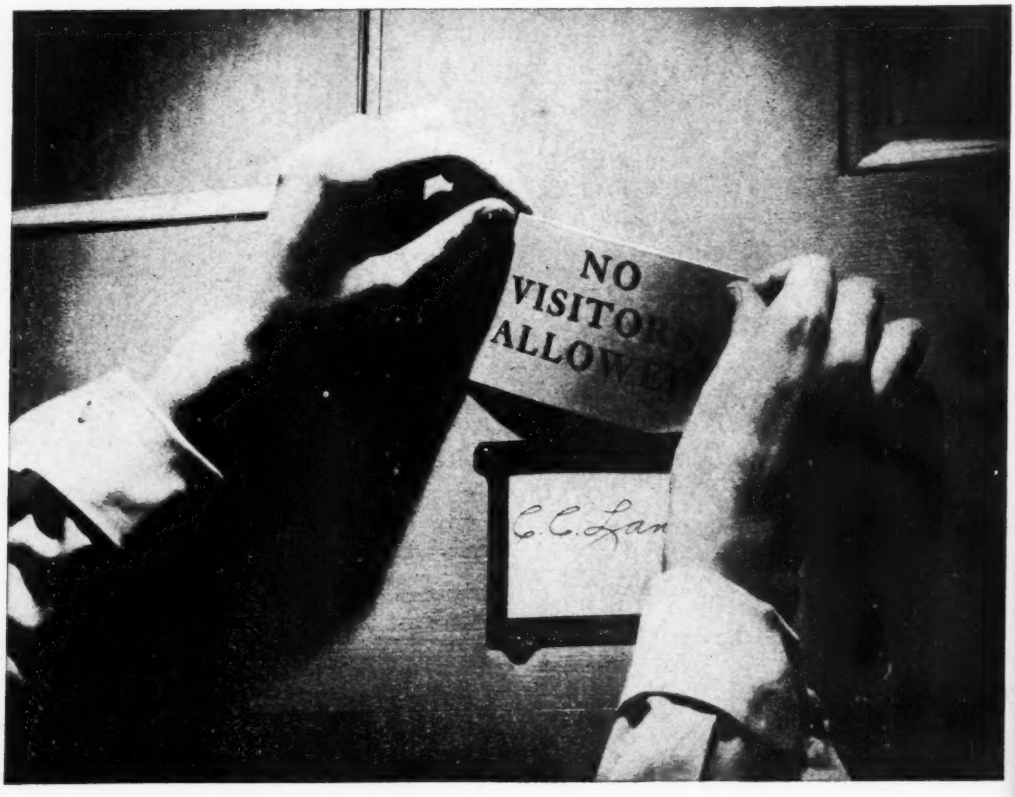
Mead Johnson & Company, Evansville, Indiana, U. S. A.

"SEE YOUR DOCTOR." **Reproduced below is Number 171 of a series of full-page advertisements published by Parke, Davis & Co. in the interest of the medical profession. This "See Your Doctor" campaign has been running in *The Saturday Evening Post* and other leading magazines for thirteen years.**



The man who nearly died . . . from a few kind words

BEYOND THAT DOOR lies a very sick man. True, his doctor says he is going to pull through. But he has come mighty close to paying a tragic price for a few words of free advice from a well-meaning friend.

When he complained of a nagging pain in his abdomen, his friend said: "You've probably eaten something that's poisoned you. Here's what *I'd* do . . ."

So he promptly followed his friend's suggestion and took a cathartic. And in a matter of hours he was being rushed by ambulance to the hospital . . . with a ruptured appendix.

His friend, of course, had acted from the kindest of motives. But he didn't know that an abdominal pain might mean acute appendicitis, in which case a cathartic should never be taken.

Unfortunately, appendicitis is only one of many illnesses where amateur medical advice can result in tragedy. Yet, human nature being what it is, many people just can't resist the temptation to offer advice when a friend is sick.

Intelligent medical treatment depends upon various factors which only a physician is qualified to evaluate. When something seems wrong with you, it is the part of wisdom to observe this common-sense rule: Take a friend's advice about buying a radio, a car, or even a home if you wish; but don't let him advise you about your health.

Don't let a friend who *means* well tell you how to *get* well. To get well, and *keep* well, the man to see is your physician.

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PARKE, DAVIS & COMPANY
Detroit, Michigan
Seventy-five years of service to medicine and pharmacy

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